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THE DUCKS OF INDIA





(Frontispiece)

RED CRESTED POCHARD

THE DUCKS OF INDIA:
Their Habits, Breeding Grounds and
Migrations ; together with other Useful
Information for the Sportsman and
Observer. *By* R. G. Wright &
Douglas Dewar. *With Twenty-two Full-page
Plates in Colours*

H. F. & G. WITHERBY

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PREFACE

SOME years ago Mr R. G. Wright suggested that I should collaborate with him in the production of a book on the ducks of India illustrated by coloured plates made by the latest process ; he declared that the plates in the existing books fall short of the standard of to-day. I had to admit the truth of his criticism of the pictures now before the public—indeed Hume makes scathing remarks about the plates in his *Game Birds of India*—but in view of the limited market for costly books on Indian birds, I doubted whether the sale proceeds of a book containing really good plates of Indian ducks would suffice to cover the cost of production. When, however, I saw some of Mr Wright's paintings of the birds, I felt that they ought to be published, even at the risk of financial loss. Now that I have seen the plates made from these pictures I think I may assert, without fear of being contradicted, that they are superior to any on the subject which have yet appeared.

I am glad to have had the opportunity of writing this book, because I believe that the perusal thereof will result in adding to the enjoyment of many a duck-shoot. The man who regards ducks merely as so many targets loses half the enjoyment of shooting. The sorting of the birds, the recording of the various species, the noting of any peculiarities in their plumage, and the comparing of the bag with previous ones, all afford much instructive amusement. The man who is interested only in the number of the ducks he has shot finds his season very restricted. The naturalist sportsman, on the other hand, discovers something

to attract him at all times of the year. In the autumn and spring he is interested in noting the arrival and departure of the various kinds of ducks. Throughout the winter he notices how the composition of his bags changes with the movement of the ducks and how the colours of the plumage of some of the drakes change with the season. In the summer he notices the late stay of some migratory species. In the rains there is always the hope of discovering the nests of the resident ducks. Further, there are more scientific observations to be made regarding the feeding and other habits of birds.

All these matters have been dealt with in the text, chiefly in Part I. In this respect *The Ducks of India* differs from most, if not all, of the other books on water-fowl.

Finally, I beg to convey my thanks to the many sportsmen and naturalists whose observations have been recorded in this book, and to Mr John Murray for his kindness in giving permission to quote the graphic account of the Tundra which appears in Seebohm's *Siberia in Asia*.

D. D.

August 1925.

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PART I
DUCKS IN GENERAL

CHAPTER I

DISTINGUISHING FEATURES OF DUCKS

For the benefit of those who are not zoologists and have done little or no duck-shooting I will endeavour to state in a few words the features whereby ducks may be distinguished from other birds commonly met with by the sportsman. To the experienced eye nothing is easier than to distinguish a duck from any other kind of bird when on the wing, but it is not very easy to explain how this is done. The following points may however assist:—

1. Ducks fly with the neck stretched out straight and the legs tucked in to the body; the tail is short and rounded: thus, in the air, the head, neck, body and tail have the shape of one of those soda-water bottles which end in a point so that they will not stand up—the neck of the bird corresponding with that of the bottle and the head with the cork. Imagine such a soda-water bottle rushing through the air on rapidly plied, pointed wings and you have a general idea of the appearance of a flying duck.
2. During flight a duck never sails along on stationary outstretched wings. A bird that does this is not a duck, whatever else it may be.

Ducks fly fast, and the wings during flight are plied so rapidly that they make quite a rustling noise—a sound which has been described as a “swish.” Each species of duck has its own peculiar wing rustle. Very experienced sportsmen, whose hearing is good, can identify

the kind of duck flying overhead by the wing rustle without looking at the bird.

3. Ducks rise easily from the water and do not flog the surface with wings and feet as coots and grebes do.

The only birds that are likely to be mistaken for ducks are swans, geese, mergansers, coots, grebes and cormorants.

Swans, which are exceedingly rare visitors to India, may be distinguished by their huge size, long necks and white plumage. As they are so rare in India they are more to be desired than ducks.

Geese.—These are distinguished by their large size, the slow flapping of their wings, and the fact that when on the wing they continually utter a peculiar “clanging” note. When flying long distances they move in company and the flying squadron adopts a V-shaped formation, one limb of the V being much longer than the other. Geese are excellent eating, so that the inexperienced sportsman who shoots one of them in mistake does not feel that he has been “sold” when he discovers his mistake!

Mergansers.—These are not easy to distinguish from true ducks on the wing unless one is able to see their long narrow bill, or by the difficulty they experience in rising from the water. As they are not common birds, and as most people shoot them, although they are not good eating, the man who kills one thinking it is a duck does not feel annoyed when he discovers what he has bagged.

Coots.—To shoot a coot in mistake for a duck is the sure mark of a “griffin.” It is quite easy to distinguish a coot (*Fulica atra*) from a duck. The black plumage (which no Indian duck has), the white forehead, the

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pointed bill, the more laboured flight, the long legs, which project beyond the tail during flight, the fact that, before it can rise from the water, the coot has to run along the surface a few paces, making much splashing, and lastly, its confiding habits—the coot remain on a *jhil* long after the duck have been frightened away—should suffice to enable the tyro to differentiate the coot.

Grebes.—The long neck, slender pointed bill, the feet projecting beyond the tail and the difficulty with which they rise from the water should enable anyone to distinguish the great crested grebe (*Podiceps cristatus*) and the eared grebe (*P. nigricollis*) from ducks. In the water the grebe swims with the greater part of the body submerged, and the long neck is very noticeable. The dabchick or little grebe (*P. albipennis*) is too small to pass for a duck.

Cormorants.—The black plumage, long neck, pointed bill and the shape of the tail should prevent anyone mistaking a cormorant for a duck.

Having bagged his bird, a novice wants to know if he has diagnosed correctly—that is, whether the bird he has shot is really a duck. This is quite easy to ascertain.

Every duck has *all three* of the following characteristics :

- (1) Webbed feet.
- (2) A flattened bill nearly as broad at the tip as at the base (broader in the case of the shoveller).
- (3) Lamellated mandibles.

If the foot of a duck be examined it will be found that the three front toes are joined together for the greater part of their length by thick skin, which forms a web ; the feet thus act as paddles.

A bird that has not webbed feet is not a duck. By this a coot may be distinguished from a duck in a second—each of its three front toes has a lobe of skin on each side constricted at each joint, but the toes are quite free ; the same is true of the grebes, except that with them the flaps of skin on the toes are not constricted at the joints.

Although a bird of which the feet are not webbed is not a duck, the converse proposition does not hold good ; many birds have webbed feet which are not ducks—for example, geese, swans, mergansers, pelicans, cormorants, gulls and terns.

If the mouth of a duck be examined the lamellated chaps or mandibles of the bill at once meet the eye. Along each edge of both jaws is a series of horny flaps like the teeth of a comb. These lamellæ or teeth are close together, closer in some ducks than in others. They serve a double purpose—as teeth, enabling their owner to hold fast to a slippery fish, and as a sieve, enabling the duck when feeding in the water to retain solid food taken into the mouth while expelling the water taken in along with it.

Coots, grebes, cormorants, pelicans, gulls and terns have not these lamellæ ; thus by a glance at the bill may they be distinguished from ducks.

The smew (*Mergus albellus*), which is a very good imitation of a duck, and which doubtless has often passed muster as one, has no lamellæ, but it has very fair imitations in the shape of saw-like serrations at the edges of both jaws.

As sportsmen sometimes come across and shoot a smew, I will here describe the bird in some detail, although it is not a true duck. It is a little larger than the white-eyed pochard.

The male has the head, neck and lower parts white.

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There is a black patch running from the bill to behind the eye on each side, and another which is V- or fan-shaped at the back of the head. The back is black and there is a narrow interrupted gorget from the shoulders round the breast. The rest of the plumage is black and grey.

The female has the head chestnut and no black patches on it. Her under parts are white, the back greyish brown, and the wings brown and white. The legs and bill of both sexes are bluish grey.

The goosander (*Merganser castor*) has saw-like teeth instead of lamellæ, and the bill is quite unlike that of a duck, being long and narrow; these features are exaggerated in the case of the red-breasted merganser (*M. serrator*), which is very rare in India. Both these species have vermilion webbed feet and there is some vermilion in the beak.

Geese and flamingos have lamellated bills, and it is by lacking the flattened beak that they are distinguished from the duck. The bill of the goose is very deep at the root and slopes towards the tip, so that it is conical in shape. Several species of goose visit India. As these are outside the scope of this work I will mention the only two that are common in winter: the grey goose (*Anser ferus*) and the bar-headed goose (*Anser indicus*). The plumage of the former is brownish grey, and that of the latter light grey: it derives its name from two black bars—one round the back of the head from eye to eye, and the other parallel to the first a little lower down on the nape. The grey goose lacks these markings. The flamingo, on account of its long legs and neck and the queer bill, bent in the middle almost to a right angle, cannot, despite its lamellated bill, possibly be mistaken for a duck.

CHAPTER II

DUCK-SHOOTING IN INDIA

DUCK-SHOOTING in India bears little resemblance to wild-fowling in England ; the conditions in the two countries, quite apart from the climate, being very different. In the British Isles ninety-nine out of one hundred of the duck shot are bagged on or by the sea ; in India the figures are reversed. The reasons for this are obvious. Great Britain has a very long coast-line in comparison with its area ; no part of the country is far from the sea ; it is densely inhabited ; the systematic drainage of the fens and other marshy places has greatly reduced the feeding and breeding grounds of the duck ; swamps and shallow pools which used to harbour thousands of duck are no more ; corn grows where sedge and rush used to flourish : in such localities ducks have been largely, if not entirely, supplanted by partridges.

India has a short coast-line in comparison with its area and abounds in inland lakes, marshes, rivers and streams, which are the happy hunting-grounds of myriads of duck that winter in India. It is true that in India vast areas of swampy ground have of late years been taken under cultivation and that the human population of the country has trebled during the last hundred years, but there still exist thousands of reedy lakes and streams in which ducks can live in comparative safety.

In England, the sportsman, unless indulging in flight shooting, usually goes after duck armed with a punt gun—a massive weapon, weighing 100 lb. or more, mounted on

a swivel and carrying 100 oz. of shot. In such circumstances he is lucky if he has the opportunity of firing half-a-dozen times in a day.

In India a man who goes duck-shooting rarely takes with him less than three hundred cartridges.

Elers Napier, writing eighty years ago, described India as the seventh heaven of the sportsman. As a sporting paradise India is not what it was. The great increase of population in recent years, the prevalence of poaching, the growing numbers of Europeans, railways, motor-cars, improved shooting implements, have all contributed to make game far less plentiful than it was formerly. Some would add, as a cause of the diminution, the great number of gun licences which have of late been granted to Indians ; but the effect of this is negligible in comparison with the destruction which is caused by the netting and snaring that go on in all parts of the country.

Migratory species have suffered far less than resident ones. As most of the Indian ducks are migratory, duck-shooting in India has not deteriorated to the same extent as big-game shooting. Ducks and geese visit India in their myriads every autumn, and remain in the country until the spring. The geese live chiefly on the various rivers, but most kinds of duck prefer lakes and marshes. In nearly all parts of the plains of India there are depressions, known as *jhils*, or tanks, into which much of the heavy monsoon rain is drained. Some of these hold water all the year round, others dry up in the hot weather. In winter practically all these tanks, even those near towns and villages, are well stocked with wild-fowl, and their muddy margins are the resort of snipe. The consequence is that duck and snipe are the small game *par excellence* in the plains of India. In

the Himalayas pheasants, partridges and woodcock afford the best sport.

A party of four shooting in good duck country in India consider they have had a poor day unless they bring home a hundred couple of duck. If the number of guns be large the bag is likely to exceed a thousand. On the 30th November 1908 a party of thirty-three shot 2237 duck at Bharatpur.

As the best duck-shooting is obtained in the larger *jhils*, where the water is usually too deep to admit of wading, the keen sportsman usually invests in a country-made duck-boat. This consists of a wooden frame over which hides are stretched. In the centre of this craft a revolving seat is fixed, on which the gunner sits. The boat is propelled by paddle or pole.

At the larger *jhils* "dug-outs" are usually available for hire. A "dug-out" is the trunk of a large tree hollowed out so as to make a rude craft. This is much used by the Indians for the purposes of fishing.

In a *jhil* where such dug-outs are not available the sportsman who has not his own boat is able to obtain a substitute in the form of a *ganai*. The *ganai* is perhaps the most primitive craft found on this earth. It is made as follows: Six large earthen pots, known as *gharras*, are taken. These are globular in shape, having on top a narrow aperture at the end of a short neck. These *gharras* are arranged in two rows of three, and each set of three lashed by the neck to a bamboo pole. The two poles are connected by cross bars, and the surface thus made is covered with reeds. In this manner a raft, about six feet by four, is constructed on top of these *gharras*. This is then carefully placed in the water. Owing to the quantity of air in the

six *gharras*, the *ganai* will just support the weight of two men when it is launched. Being almost square, it is very difficult to navigate, and its utmost speed is about one mile an hour. Those squatting on it have to sit very still and keep well to the centre, otherwise one or more of the *gharras* may sink so low that the water enters the orifice. When this happens there is a gurgling sound, and, if the occupants of the *ganai* do not speedily rectify their positions, their craft sinks! With care, however, a *ganai* is not a bad substitute for a boat, and I have shot many duck from such craft.

Two or three guns in boats and some on the shore of a lake should ensure a good bag of duck on any *jhil* that has not been too recently shot over.

As duck-shooting takes place only in the winter, when the weather is usually perfect—the temperature mild and the sun's rays not more powerful than they are in England in August—a good sun helmet affords ample protection from sunstroke. It is difficult to imagine a more pleasant experience than a day's duck-shooting in Northern India.

Let me describe one for the benefit of those who have never been to India.

A start is made at sunrise—in mid-winter that is about eight A.M. in Northern India. Greatcoats, gloves and rugs are essential to the sportsmen during the drive to the *jhil*, because the air is chilly until the sun is high in the heavens. The distance to the *jhil* is probably not less than ten miles. The first part of the drive is over a smooth, metalled road, bounded on either side by mango, tamarind and other trees.

The countryside has a very pleasing aspect. The sky is fleckless blue. The sun's rays fall upon fields green with the spring crops. Vultures and kites wheel overhead, and

skylarks sing in mid-air. In the leafy trees are seen striped squirrels, golden orioles, black king-crows, and emerald paroquets and bee-eaters. Crows, mynahs and pied wag-tails move about on the ground beneath the branches of the roadside trees. The welkin rings with the sounds of the avian choir. Chief among the vocalists are the grey-headed flycatchers, that sing "*Think of me, never to be,*" the kites that wail mournfully, the crows that squawk, the mynahs that chatter, and the seven sisters that squeak. To these not very melodious sounds are added the canary-like songs of the sunbirds.

A mile or two from the tank the sportsmen leave the main road and follow what is termed a *kachcha* road, which is often a mere cart track across the fields. Eventually the *jhil* is reached. Each sportsman finds his *shikari* or his boatman in readiness to take charge of his gun, cartridges and other paraphernalia. Your man leads the way to your boat, which is at the edge of what looks like a rice-field. No open water is seen, for the greater part of the tank is covered with wild rice. You seat yourself in the boat and your man pushes this through the wild rice, himself wading. It is hard work, for the stiff stems of the rice offer considerable resistance; progress is very slow. After a little the water becomes so deep that the boatman has to get into the boat, where he squats in the stern; he then forces the craft through the rice by means of pole or paddle. As the water becomes deeper, the rice gets less dense, and you come upon small patches of open water. These patches may or may not contain a few duck; if they do, the duck get up and fly towards the middle of the lake. You refrain from firing unless they are within easy range. Presently you hear the report

of a gun, and immediately great flocks of duck rise from the water and fly overhead in circles. Your boatman then propels your boat as vigorously as he can to bring you into the open water in the middle of the *jhil*. Some duck fly overhead and you fire; if you are a good shot you bag a couple and your man leaves the boat and wades or swims to retrieve them. After that, for an hour or so, the fun is fast and furious. Small flocks of duck fly overhead in rapid succession, and the barrel of your gun becomes so hot that it is painful to hold. At first each flock of duck contains a good many birds, then the number grows smaller and the flocks appear less frequently. Later the duck come overhead in twos and ones. Finally not a duck is to be seen, except a few flying out of range. The *jhil*, which two hours previously contained thousands of birds, is now devoid of duck. Only coots, lotus-birds and grebes remain. Then all the boats make for some appointed spot on the shore of the *jhil*. You land and repair to a neighbouring mango tope. You are glad to find yourself in the shade, for by this time the rays of the sun are distinctly hot. On the ground under the trees your servants have set out a generous meal, to which you do full justice. The meal over, you spend half-an-hour in smoking, conversing and counting and examining the bag. Then you walk to another *jhil* near by, to which many of the duck that were formerly on the *jhil* over which you have shot have betaken themselves. At the margin of the second lake you find your boat ready for you, and the performance of the morning is repeated. Finally the party repair to their conveyance and drive back, after nightfall. At the bungalow they are welcomed by a cheerful fire and tea, over which the events of the day are discussed.

CHAPTER III

DUCKS IN KASHMIR

By R. G. WRIGHT

KASHMIR is undoubtedly one of the most beautiful countries in the world, and its mountains, with countless lakes and streams, together with the wonderful fertile valley, through which the River Jhelum winds its way, afford a paradise of a resting-place for migratory duck and geese on their way to the plains of India in the autumn, and on their return journey over the Outer Himalayas in the spring.

The valley of Kashmir is about 5000 feet above sea-level. Compared with England its winter is much the same except that the country is invariably under snow during the latter part of December and January, but, in point of vegetation, it crowds into the months of March, April and May as much as England does in five months : the months of June, July and August are consistently warm in the valleys, the thermometer showing an average of about 90° to 95° during the day. This sort of temperature evidently does not appeal to wild duck as a whole, for, from statistics, it is found that very few appear to stay in the valley to breed : they merely use it as a halting-place, and with the increase of sportsmen their sojourn is becoming proportionately short in the valley. Amongst the duck which are said to breed there are the mallard, white-eyed pochard and teal ; but they are not in large quantities, for, as Major Wigram points out, they receive scant courtesy

from the Kashmiries, who are always on the look-out to steal the eggs from their nests.

Colonel Ward, the great authority on natural history in Kashmir, reports having found the brahminy, or ruddy sheldrake, breeding round the Pangong lake in Ladak, and, in the same district, thousands of bar-headed geese on the Lake Iso Morari. The smew he has found on the River Shyck in Baltistan, and a few pintail, gadwall and teal in Changehenmo in Ladak.

Thus it will be seen that the wild duck that visit India via Kashmir are only temporary visitors to that region, and during the spring migration fly over the Outer and Inner Himalayas for the breeding season, penetrating far into the latter range, some breeding at an altitude higher than the highest mountain in Europe, while others carry on to Central Asia, travelling thousands of miles for that purpose.

A glance at the lists of varieties of wild duck shot on separate occasions in big shoots in Kashmir is interesting as showing the type of duck that uses this line of migration.

Generally speaking, duck begin to arrive from the north early in September and depart when the cold sets in, in December; the return migration commences in March, when vast numbers of duck pass through, halting a few weeks only and then proceeding northwards. From the middle of October and for the next month the main flight of teal arrive, together with a fair sprinkling of gadwall and mallard; vast numbers of geese also congregate on the Woolar Lake about this time. From then onwards mallard and gadwall arrive in great numbers, and by the end of November and December are fairly established, until frost and snow force them to move southwards.

The chief *jhils* in Kashmir are reserved by the State,

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and are shot over only a limited number of times as compared with those open to the public; consequently they provide a sanctuary, as it were, for the duck; hence the enormous bags obtained. Of the State *jhils*, Hokra, about eight miles south of Srinagar, is one of the finest and most beautiful in Asia, being situated in the middle of the valley, which is from twenty-five to thirty-five miles across: it commands a magnificent view in all directions, snow-clad mountains rising on the south side to 15,000 feet above the sea-level and to over 20,000 feet on the north side. Here the distinguished and favoured guests of His Highness the Maharajah of Kashmir, whose hospitality knows no bounds, for many years have enjoyed some of the finest duck-shooting they could desire.

In recent years His Highness General Raja Sir Hari Singh has reserved for his own use a *jhil* known as Highgam, situated south of the Woollar Lake, where in 1922, a few

	(1) A bag made Oct 18, 1913	(2) A bag made Nov 16, 1922, party, 11 guns	(3) Bag made in a bad season by party, Oct 1921	(4) A bag for a season made by one gun, 1919-1920
Mallard	22	257	1827	2
White-eyed Pochard . . . . .	..	..	31	..
Red-crested Pochard	191	173	4	86
Common Pochard . . . . .	..	...	72	...
Tufted Pochard . . . . .	..	..	20	...
Common Teal	447	528	2720	60
Garganey Teal . . . . .	...	...	1	...
Gadwall	21	326	596	3
Pintail	3	2	365	1
Widgeon	1	16	18	...
Shoveller	15	16	82	4
Smew . . . . .	..	...	10	...

days after the shoot recorded (see p. 24), His Highness and six other guns shot 2120 duck and teal, Sir Hari Singh obtaining 516 to his own gun, while three other members of the party obtained over 300 each.

Only one spotbill duck has been recorded as shot on the State *jhils* in the past twenty years ; four marbled duck were shot in 1922-1923. It seems likely, however, that this particular duck may have been amongst the list of "various" as recorded in some shoots, not having been identified. It should be noted that in the autumn most of the duck are in eclipse plumage on arrival in Kashmir, while on their return in the spring they are in full plumage : in the former case identification is by no means an easy matter, and my attention has frequently been called to the number of "hybrid duck" found in India, especially in the autumn ; this point however is being dealt with by Dewar in another chapter, but I mention it as showing that the marbled duck in the autumn at least might not be easy to identify among the birds in eclipse plumage.

I am greatly indebted to Major H. Wigram, Secretary, Game Preservation Department, Kashmir State, for information on the duck of Kashmir and the interesting statistics he has supplied.

CHAPTER IV

MIGRATION

As all the wild geese we see in India, and most of the duck, are merely winter visitors, and leave the country for breeding purposes in the spring, it is desirable to say something about migration.

I have some hesitation in doing so, because, although many observers have spent a great deal of time and taken much trouble in studying the phenomenon of bird migration, the results yielded have been very meagre. This is not the fault of the investigators; the subject is a most difficult one.

Why do some species of duck fly over the Himalayas, and far beyond, to nest, while others rear up their families in India? It may be that the migratory duck are impatient of heat, and this is probably the explanation of some migration. Brahminy duck, for example, thrive in captivity in the Lahore Zoological Gardens, but they have never bred there, though they breed in the London and Paris Zoological Gardens. It would thus seem that this species, although it is able to live through the Punjab hot weather, cannot raise enough energy to breed.

It occasionally happens that migratory duck are shot in India in the hot weather. It has hitherto been assumed that such birds have been wounded in the cold weather by some sportsmen and had their wings so injured that they have not been able to take the long migratory flight, so, perforce, have had to remain and endure,

with the Europeans, the burning heat of the plains of India. This assumption seems reasonable. However, some observations made in the hot weather of 1921 by Major C. H. Stockley point to the fact that the above explanation does not cover the case of all migratory duck that stay late in India. His observations are recorded on p. 548 of vol. xxviii. of *The Journal of the Bombay Natural History Society*, and are so interesting that I take the liberty of reproducing them *in extenso*. On 28th August 1921 he wrote :

“During this hot weather I have been fortunate in obtaining several specimens of duck of different species, as shown in the following list :—

Date	Species	Sex	Notes
May 23, 1921	Common Pochard (<i>Nyroca ferina</i>)	♀ ♀ ♀ ¹	Three specimens shot out of two flocks of about a dozen birds each
May 24, 1921	Red-crested Pochard (<i>Netta rufina</i>)	♂	A solitary drake brought to me alive, slightly winged by shikari who shot him
June 3, 1921	Garganey Teal (<i>Querquedula circa</i>)	♀ }	Shot out of two small flocks of three or four. Several more seen
June 6, 1921	do.	♂ }	
June 7, 1921	Shoveller (<i>Spatula clypeata</i>)	♂ ♀	A pair shot together
June 16, 1921	do.	♀	A single bird
June 17, 1921	Gadwall (<i>Chaulelasmus streperus</i>)	♂ ♂	Two shot out of a flock of six. This seems to be the latest appearance on record of this duck
June 26, 1921	Shoveller	♂ ♀	Another pair shot together
July 4, 1921	Common Pochard	♀ ♀	Single birds
July 19, 1921	Garganey Teal	♂ ♀	A pair shot together
July 20, 1921	Common Pochard	♂ }	Shot together out of the same flock of six birds
	Red-crested Pochard	♀ }	

¹ ♀ = female, ♂ = male

"It is very remarkable that on the ovaries being examined not one of the females showed any signs of breeding. In no case could I distinguish any signs of injury, and there can be no doubt whatever that the late stay of these birds is not to be accounted for by the usual theory of their being pricked during the shooting season and unable to fly. All these birds were shot on the Karung river, within six miles of Rawalpindi, and it is absurd to assume that they stayed there otherwise than by their own choice, when Kashmir was within a couple of hours' flight of them.

"It was noticeable that the first two garganey obtained had the lower plumage stained with rufous, I suppose from the red mud of the river, and in consequence appear to have been there for a considerable period; the pair shot on the 19th July show no signs of such staining, and the inference is that they were recent arrivals. The drake garganey shot on 6th June 1921 still retained his drooping shoulder-plumes, while that shot on 19th July 1921 had shed them.

"All June birds had the secondaries much worn: in the case of the shovellers they were reduced to the shaft only for the ultimate half of the feathers. I should have expected that the primaries would have shown more signs of wear than the secondaries.

"On three different days in July my shikari reported that there were pintail on the river. He is usually quite accurate in such matters and is little likely to have made a mistake with such a conspicuous bird. I could not discover any myself, but sent him down with my gun to try to obtain some specimens, and he reported having missed some on 20th July. Baptista (the Society's collector), who was with him, supports his statement.

"Our first heavy rain fell on the 15th July, and the birds I saw after this date seemed to be quite a different lot to those which had been on the river before. They were about in flocks; the specimens I obtained were in much brighter plumage in spite of the very dirty water in the river, and there were many more birds about. This continued till the end of July, when we had heavy and continuous rain. Immediately all the big duck vanished and their place was taken by several flocks of teal, which also disappeared a couple of days later: this in spite of the fact that very heavy rain continued to fall and conditions seemed particularly favourable for their stay.

"It seemed to me that an entirely fresh set of birds passed through at the end of July, and were replaced by a fresh set of teal. If this is correct, the question immediately arises, 'Where did they come from?'

"Again, why were there so many birds in the driest period of a bad drought, which all disappeared when the conditions became apparently more favourable?

"It looks as if many more birds stop down in the plains voluntarily than is usually supposed, and the drought drove them to collect where there was permanent water; and, the heavy rains having filled up their usual small ponds and tanks, they dispersed again.

"I put this explanation forward because I cannot think of a better one. Perhaps some other member of the Society will help me out."

If I may hazard an explanation of the reason of the late stay of these birds, it seems to lie in the fact that the ovaries showed no signs of breeding. There must be some stimulus that causes the duck to make their long migratory flight. The rising temperature in spring is doubtless such

a stimulus, but it is, I think, not the chief one : if it were, duck would remain longer in years when the hot weather was late in coming and the departure of each species would be less gradual than it is. The immediate stimulus would seem to be the ovaries becoming ready to produce eggs. We know in the case of most species—particularly in that of rosy starlings (*Pastor roseus*)—that the birds set about nesting immediately on their arrival at their breeding grounds. This means that at the time of their arrival the ovaries are nearly ready for egg-production.

It may happen that, for some reason or other, the ovaries in certain individuals are late in developing fecundity, and when this happens, those individuals, not having the necessary stimulus to urge them to take the long migratory flight, are likely to tarry long in India. The reason why Major Stockley saw so large a number in one locality is, I think, as he suggests—that they were forced by the drought to collect where there was water : thus the ducks he saw in one locality had come from various directions.

In another year of drought—namely, in 1919—I saw on 27th and 30th May and 2nd June, in a shallow creek of the Ganges at Ghazipur, a duck and a drake red-crested pochard.

It may perhaps be said that the above suggestion possibly accounts for the late stay of the females, but what about the drakes ?

M. Rogeron, who has spent the greater part of his life in studying ducks, asserts that they pair for life, and that even when ducks of various kinds occur apparently mixed up in large flocks they are in reality in couples.

If the birds pair for life the drakes would naturally

keep with the ducks. The observations of Major Stockley, however, do not seem to bear this out. On p. 279 of vol. xxix. of *The Journal of the Bombay Natural History Society* he records some interesting facts regarding the migration of ducks to India. "I have," he writes, "once again noticed that this season, as in previous seasons in the Punjab, the male birds seem to arrive after the females. My observations are mostly with reference to teal and mallard. I find, on reference to my diary, during the latter half of last November (1920) I shot three teal and two mallard on the Khanna stream and that all of them were females. My record for December is the same. In both months I shot four duck of other species, only one (a gadwall) being a male. Out of about sixty other duck seen I could definitely put down only two as drakes—a mallard and a red-headed pochard. At least fifty of the remainder were undoubtedly females. In the first half of January (I did not shoot during the second half) I shot eight mallard and three teal, all drakes; the three teal were shot out of a party of six, all of which were drakes but one. In February I shot six mallard and two teal, only one mallard being a female. I examined a flock of about one hundred teal resting on a pool in the river in the last week of February and at least four out of five were drakes. Now, during March, the mallard have mostly gone and their place has been taken by pintail, and the proportion of males and females seems about even, the females perhaps preponderating. I was stationed at Peshawar and the Malakand from November 1903 to March 1907 and I noticed exactly the same thing in about the same proportions, but my shooting diary for those years is not

available, and the only figures I have are 42 teal between 15th September and 15th October 1904, of which 11 were garganey (out of the first 17 shot); of that total only three garganeys and two common teal were drakes."

The observations of Major Stockley do not coincide with the statement that ducks pair for life. Major Stockley is not likely to have mistaken drakes in eclipse plumage for ducks, since he shot many of the birds. The matter is certainly one that needs further investigation by sportsmen and others. Even if ducks do not pair for life and the females migrate in the autumn before the males, it does not follow that this happens in the spring. There is some evidence to show that pairing sometimes, at any rate, takes place *before* migration. It will be noticed that Stockley shot no fewer than three pairs, and the late stayers I saw at Ghazipur in 1919 were a pair. If at or about the pairing season the duck remains behind, it is only to be expected that her mate or prospective mate will do likewise.

Quite apart from the stimulus of temperature or the development of the sexual organs, there is another factor that explains, at any rate, some of the local migration, such as that which occurs among bee-eaters in India. A little consideration will show that the question of food-supply must entail a certain amount of migration at the nesting season. Since all the members of a species of duck breed at about the same time (possibly some may be as much as six weeks earlier than others), assuming that each pair produces, on an average, eight young ones, each of which, owing to the pace at which it grows, has a most voracious appetite, the food demand of that species of duck is suddenly increased fourfold. This increase must, in most

cases, be greater than any locality can supply: hence the species must spread out at the breeding season if most individuals are not to be put to very great, if not insuperable, difficulty in finding food. This, however, would not explain the migration of those duck of which all the members of the species leave India in the spring. It would be otherwise if about one-fourth remained behind in the plains, and numbers bred in the lakes of Kashmir.

In order to explain this wholesale clearing out of a species from one locality and flight to a distant locality to breed, it is suggested that the homing instinct is strongly developed in migratory birds—that at the breeding season a bird's thoughts naturally turn to "home"—*i.e.* its birth-place. In support of this theory is the fact of the return, year after year, to the same nest of what appears to be the identical pair of migratory birds—as, for example, a pair of common swallows. This hypothesis, however, will not explain the migration of such a species as the rosy starling, which comes in its thousands to, let us say, Smyrna or Odessa one year, where not a single rosy starling shows itself in subsequent years.

Another phenomenon which renders it difficult to explain migration is the different behaviour of members of the same species. Take the case of the mallard in England. Rings were placed round the legs of a large number of these. Later some of the ringed birds were shot; the great majority were shot in England, but about two per cent. of them had migrated to other countries. Some, for example, were found in East Prussia.

Much remains to be learned of the causes of migration; even more has to be discovered about the direction and course of migration. A certain amount has been

discovered as the result of ringing large numbers of duck. These ringing experiments have revealed many interesting facts—*e.g.* some mallard ringed in Sweden and East Prussia were proved to have migrated in a south-westerly direction in the autumn.

Teal ringed in Denmark in summer were found in winter in various parts of Europe—*e.g.* England, France, Holland, Spain and Italy. A widgeon ringed in England in 1915 was captured in 1918 on the north coast of the Caspian Sea.

At present there are not sufficient data to form a basis for any generalisation regarding the direction of migration, save that in the Northern Hemisphere it is generally northwards in the spring and southwards in the autumn.

The observations of Stockley will, I hope, stimulate sportsmen in India to pay attention to the subject of migration of duck with a view to making further additions to our knowledge of this most interesting branch of knowledge.

CHAPTER V

THE BREEDING GROUNDS OF MIGRATORY DUCKS

SOME species of duck breed in India ; the majority leave the country for nesting purposes. Of these a few raise their broods in Kashmir ; others, such as the Brahminy duck, nest in Turkestan, Tibet and Asia Minor ; others, for example the widgeon and the shoveller, go farther afield, while yet others breed within the Arctic Circle (lat. 68° N.). Among these last are the pintail, scaup, golden-eye, and some of the geese and swans.

A short account of the breeding grounds of duck in the far north may be of interest to sportsmen. Seebohm, in his *Siberia in Asia*, gives a fascinating description of bird-life in the summer in the Tundra—the flat, boggy country in the north of Siberia :

“The history of the animal and vegetable life on the Tundra,” he writes, “is a very curious one. For eight months out of the twelve, every trace of vegetable life is completely hidden under a blanket, six feet thick, of snow, which effectually covers every plant and bush—trees there are none to hide. During six months of this time at least animal life is only traceable by the footprints of a reindeer or a fox in the snow, or by the occasional appearance of a raven or snowy owl, wandering above the limits of forest growth, where it has retired for the winter. For two months in midwinter the sun never rises above the horizon, and the white snow reflects only the fitful light of the

moon, the stars or the aurora borealis. Early in February the sun just peeps above the scene for a few minutes at noon, and then retires. Day by day he prolongs his visit more and more, until February, March, April and May have passed, and continuous night becomes continuous day. Early in June the sun only just touches the horizon at midnight, but does not set any more for some time. At midday the sun's rays are hot enough to blister the skin, but they glance harmless from the snow, and for a few days you have the anomaly of unbroken day in midwinter.

"Then comes the south wind, and often rain, and the great event of the year takes place : the ice on the great rivers breaks up, and the blanket of snow melts away. The black earth absorbs the heat of the never-setting sun ; quietly but swiftly vegetable life awakes from its long sleep, and for three months a hot summer produces a brilliant alpine flora, like an English flower-garden run wild, and a profusion of alpine fruit, diversified only by storms from the north, which sometimes, for a day or two, bring cold and rain down from the Arctic ice.

"But early in August the sun begins to dip for a few moments below the horizon, and every succeeding midnight sees him hide longer and longer, until in September the nights are cold, the frost kills vegetation, and early in October winter has set in, snow has fallen, not to melt again for eight months ; the nights get longer and longer until, towards the end of November, the sun has ceased to take its midday peep at the endless fields of snow, and the two months' night and silence reign supreme.

"But, wonderful as is the transformation in the aspect of the vegetable world in those regions, the change in animal life is far more sudden and more striking. The

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breaking up of the ice on the great rivers is, of course, the sensational event of the season. It is probably the grandest exhibition of stupendous power to be seen in the world. Storms at sea and hurricanes on land are grand enough in their way, but the power displayed seems to be an angry power, which works itself up into a passion to display its greatness. The silent upheaval of a gigantic river, four miles wide, the smash-up of the six-foot-thick ice upon it, at the rate of twenty square miles an hour, is to my mind a more majestic display of power; but, for all that, the arrival of migratory birds, so suddenly and in such countless numbers, appeals more forcibly to the imagination, perhaps because it is more mysterious."

The summer being so brief, the birds that come to the Tundra to nest have little time to spare. The rush of migratory birds to their northern breeding grounds may be likened to that of women to a summer sale at some great shop. The thaw begins in the south and works up north at the rate of about one hundred miles a day. The birds, in their anxiety to procure breeding areas, keep company with the thaw. Sometimes they overshoot the mark, get ahead of the thaw, and find themselves in an ice-bound country where no food is procurable. Then they have to turn back until they come to some oasis of land in the vast desert of snow. For a day or two such oases are thickly stocked with birds.

The change from midwinter to midsummer takes place within a fortnight. The sun seems to have little power to thaw the snow, but this melts when a south wind arises; to quote Seebohm, before this wind the snow melts "like butter on hot toast," and winter tumbles down like a card-house.

In 1877 Seebohm spent the month of May just within the Arctic Circle, at the junction of the Koorayika and Yenisyay rivers. He wrote a vivid account of what he saw of bird migration there. On 9th May fell the first rain he had experienced in the Arctic Circle, a flock of geese flew over, and "we rejoiced at the prospect of an early end to the long winter." But it was not until 16th May that he saw more geese. "During the night a considerable quantity of rain fell, and in the morning the wind was sou'-west, with sleet. In the afternoon we had an occasional gleam of sunshine, and on the evening the wind fell, but the sky was cloudy. The snow was very soft, but it thawed very slowly. We had nevertheless many indications of summer. I saw at least a dozen flocks of geese, each containing from six to twenty birds." On 17th May fine dry snow fell all day. Then came a cold spell of weather which stopped the migration of the geese, and he saw no more of these till the 24th, and the birds he then noticed were all going southwards, having flown too far. All these geese were bean-geese. On the 26th, numbers of these geese flew over in a northerly direction in flocks of five or six. On the 28th, flocks of geese and swans flew overhead all day. The same happened on the 29th. On the following day the weather was colder and numbers of "yesterday's rash birds" returned. The 31st of May was warm, and many geese and swans passed overhead on their northward journey.

On 1st June the ice on the river began to break up, and great numbers of geese and large flocks of swans flew overhead, going north. These geese were the lesser white-fronted goose, which visits India in small numbers in winter. On 2nd June the break-up of the ice proceeded

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apace. Seebohm writes : " The revolution in the ice took place to the accompaniment of a perfect babel of birds. Above our heads were continually heard the *gag, gag* of geese and the harsh bark of swans, as flock after flock hurried past us to the Tundra. Wherever there was a little open water between the ice-floes and pack ice, crowds of gulls were fishing as if they had not had a meal for a week, and their derisive laugh, as they quarrelled over their prey, seemed to mock our misfortunes, while, ever and anon, the wild weird cries of the black-throated and red-throated divers, like the screams of tortured children, came from the creek opposite. A few flocks of wild duck also passed us, and along the shore small birds flitted from bush to bush in hitherto unknown profusion."

Late on the night of 4th June the ice on the river had almost disappeared, but there was still much snow on the ground. Then all the spring birds, including the cuckoo, appeared. On the 6th, a little white-fronted goose, some teal, pintail ducks, a widgeon and a smew were seen, and a few geese and swans passed overhead, but the main rush of their migration was over by then. By the 10th of June the geese had ceased to fly overhead. In that year an observer in a ship at latitude $70^{\circ} 35''$ reports that the sun ceased to set on the 15th May and the first geese to arrive came on the 29th.

On the Koorayika river, where Seebohm was, the main stream of migrating duck passed overhead from the 6th to the 12th of June. Among the duck that passed overhead were the scaup and the golden-eye ; along with these were goosanders and red-breasted mergansers. On the 17th he came upon thirteen eggs of the golden-eye which were laid in a hollow tree, the hollow being lined with down.

At that time there were still large patches of snow in the forest. On the 18th he found two widgeons' nests containing respectively seven and five eggs, and a shoveller's nest containing four eggs. On the following day he came upon a widgeon's nest with six eggs.

The 21st and 22nd were oppressively hot.

By 1st July the mosquitoes were swarming in clouds. These were so thick between the eye and the sight of the gun that Seebohm found it almost impossible to sight a small bird!

He reached the Tundra on 12th July, when the ground was carpeted with bright flowers. There he saw many duck and found eggs of teal and Bewick's swans.

CHAPTER VI

THE ECLIPSE PLUMAGE OF DRAKES

Ducks undergo two moults every year—a complete and sudden one about May or June in the case of the drake, and a few days later in that of the duck, and a partial and gradual one towards the end of September.

A peculiarity of ducks, geese and swans is that in the summer moult all the quill feathers are lost simultaneously, in consequence of which the birds are unable to fly for a period of about four weeks. That this has not led to their extinction is due to their being aquatic birds and good swimmers and divers. Ducks, moreover, during the summer moult usually retire to some very secluded spot.

Now ducks, as regards plumage, fall into three classes : those of which both sexes are brightly coloured, of such the sheldrake is an example ; those of which, like the mallard or wild-duck, the drake alone wears bright plumage ; and those of which the plumage of both sexes is dull. The spotted-bill duck is an example of this class familiar to sportsmen in India.

All the drakes of the second class, as the result of the summer moult, assume a plumage altogether different from that which they display after the autumn moult ; this plumage is very like that of the female and young birds, and, being far less showy, is styled “eclipse” plumage. So different are the two liveries that no person unacquainted with the facts would recognise as one species the same bird in full and in eclipse plumage. The summer moult

occurs in May or June and the autumn one begins at the end of September, so the drakes retain the dull plumage for only about four months, while they wear their gay breeding livery for about eight. If there were anything in the theory of protective colouring, we should expect the drake to display the bright plumage only during the breeding season and wear the dull, protectively hued garment during the remainder of the year.

In the case of the migratory ducks the great majority are well through with the autumn moult by the time they arrive in India, so that sportsmen in that country rarely, if ever, meet with such birds as the mallard, teal, pintail and shoveller in eclipse plumage. But the assumption of the bright colouring, unlike that of the dull, is very gradual; the gay feathers are often of sober hue when they first appear, and grow more vivid or even change colour as they develop. Thus it happens, especially in the early part of the shooting season, that many drakes are obtained in plumage intermediate between the eclipse and full dress. Such ducks do not resemble the coloured plates in the works of Hume and Marshall, or Stuart Baker, or in the present book, because the artists naturally wish to depict the drakes in perfect plumage.

When a sportsman shoots a duck in this intermediate plumage and compares it with a coloured plate he may experience some little difficulty in identifying it, and may complain that the plate is bad, or think that he has shot a hybrid.

As has been remarked above, the drake in eclipse plumage usually bears a close resemblance to the female. When a bird is shot intermediate in colouring between the male and female, it is either a drake which has not

yet come into full plumage or a young bird. In the text I have given brief notes on the eclipse or undress plumage of the various drakes of which the plumage changes with the season, and I hope that Mr Wright's plates, together with these remarks and the notes under each species regarding undress plumage, will enable a sportsman to identify with ease every specimen he shoots.

CHAPTER VII

THE ECONOMIC IMPORTANCE OF THE DUCKS OF INDIA

INDIA, in addition to possessing several resident species, is visited every winter by millions of ducks which breed in other parts of Asia. It follows that the Anatidae must be of considerable economic importance to India, that these millions of duck must of necessity leave their mark on the country.

The question therefore arises, Is the presence of all these ducks a good thing from the point of view of the economist? I am inclined to think that this question should be answered in the affirmative, although, apparently, this is not the opinion of C. W. Mason and H. Maxwell Lefroy, the compilers of a valuable official publication entitled *The Food of Birds in India*.

I take the liberty of reproducing *in extenso* what these authorities have to say on the subject (*loc. cit.*, pp. 303-305):

"The Anseres comprise a very important group of birds. Not only are many species kept domestically for the value of their products, but many of the wild species form a large natural food-supply for man.

"They are to a very large extent migrants, and therefore we cannot regulate their occurrence in any one district except by almost complete extermination. Many do an enormous amount of damage to young growing crops, chiefly cereals. . . .

"The swans are by no means of general occurrence in India . . . and therefore of no agricultural importance. They certainly never appear in numbers worth consideration.

"The geese without exception appear to do a great deal of damage to grain and other crops; and this is not only due to the fact that they feed on the grain and young growth, but they also pull up the young plants, so preventing all chance of any aftergrowth which would result if only the leaves were eaten off. Considerable damage is also done by treading down the crops affected.

"*Ducks*.—We have nothing definitely on record about the food of ducks except in a generalised way. It is, however, evident that little, if any, benefit is derived from them as far as their feeding qualities are concerned. We can class none as beneficial, most will at present come under the neutral heading, and some are apparently injurious to a greater or less extent. Amongst the latter group we may specially mention the 'Garganey' or 'Blue-winged Teal' (*Querquedula circia*), the 'Whistling Teal' (*Dendrocygna javanica*), and the 'Spotted-bill Duck' (*Anas poecilorhyncha*), all of which are said to do a great deal of damage at times in paddy-fields. One or two other species also feed on paddy to a minor extent, especially the 'Large Whistling Teal' (*D. fulva*), the 'Widgeon' (*Mareca penelope*), the 'Gadwall' (*Chaulelasmus streperus*), and the 'Brahminy Duck' (*Casarca rutila*), the first two being of the most importance, and many species feed on young crops generally.

"It is also well to note that those species which are injurious to crops are the best for food. . . .

"The members of the genus *Merganser* feed almost entirely on fish, and therefore possibly do some damage locally.

"Ducks of most species are obtained for the markets in great numbers, and it is questionable as to whether the benefits derived from these local industries counter-balance the value of the crops destroyed. Some beneficial action may be attributed to them because they eat snails, etc., to a great extent, and in most cases water-insects (some of these, however, may be beneficial)."

Upon the above I would make the following observations :—

1. The estimates of the food of the various species of duck are formed, not as the result of the examination by the writers of the contents of stomachs of birds, but on reports of naturalists, some of whom do not support their statements by any evidence. Of only two species—the spotted-bill duck and the garganey teal—does Mr Mason appear to have examined stomachs.

Three stomachs of the former were found to contain :

1st Stomach.—A few small water-snails.

2nd Stomach.—One small water-snail and some vegetable matter.

3rd Stomach.—One frog, three small snails and some vegetable matter.

Two stomachs of the garganey teal were found to contain :

1st Stomach.—Four small shells and the remains of seven more, eight bulbous water-weed roots, one small stone, and a large amount of sand.

2nd Stomach.—One small pointed shell, two larger snail shells, four bivalves, two small black seeds, and seven large pieces of a leguminous weed.

Notwithstanding the above, Mason and Lefroy consider the above two duck as among the most injurious.

2. Some of the ducks—particularly the pochards—are mainly carnivorous, and in the case of others there is no authentic record of their eating the crops. Against the following species there seems to be no evidence : white-winged wood duck, sheldrake, pintail, shoveller, marbled duck, red-crested pochard, pochard, white-eyed duck, scaup, tufted duck, golden-eye, pink-headed duck.

3. The geese and the Brahminy duck certainly do damage to crops.

4. The ducks which eat cultivated rice subsist mainly on weeds and animal food.

Millions of ducks are killed in India annually and eaten as food. If these ducks were not available, the human beings who consume them would have to eat some other food. Thus the answer to the above question depends on whether or not the food value of the ducks eaten as food is greater or less than the amount of cultivated rice eaten by all the ducks in India. Personally I am inclined to think that it is greater, but until we learn more about the food of the various species of duck we are not in a position to give a definite answer to this question.

I must confess that I have never had the time, or perhaps I should say patience, to examine the contents of the stomach of any duck. Here there is a fine field for the sportsman. So far the only naturalists who have recorded contents of stomachs of ducks are Mason, A. O. Hume and E. C. Stuart Baker. The last two have not given details such as Mason has.

Under each species of duck described I have inserted a paragraph on the food of the bird. These paragraphs are based mainly on the observations of the three gentlemen named above.

CHAPTER VIII

SNARING DUCKS

So numerous are the methods of snaring water-fowl practised in India that a small book might be written on the subject. The amount of snaring that goes on is incredible. Throughout the cold weather hundreds of ducks are caught daily and sent into the markets of every town. A good method of making the acquaintance of rare duck is by paying daily visits to the local market. Frank Finn used to do this when he was at Calcutta, and, by taking notes of the ducks brought to the market day by day and year by year, made some interesting discoveries about the migration of duck into India.

The numbers of any species offered for sale are great or small as that particular species is abundant or scarce in the locality from which the market is supplied : thus by visiting the market frequently for a series of years an indication is obtained of the abundance or otherwise of the various species in each season.

Bird-catching is an occupation which provides thousands of people in India with a living.

A few words on some of the methods of snaring duck and geese may be of interest. These, naturally, vary in different parts of India.

If the water in a *jhil* be sufficiently shallow to allow a man to wade over the whole or greater part of it, the duck-catcher usually wades up to the bird, seizes its legs and pulls it under water before it has time to utter a

sound. Duck, however, are wary creatures, and two conditions have to be fulfilled before a wading man can get near enough to one to seize its legs: the man must be disguised so that the ducks do not recognise him as a human being, and he must move so slowly as to create no sensible disturbance of the water. Indians are adepts at stealthy movement. In the time of the Emperor Akbar the duck-catcher used to hide his head in the skin of some large water-fowl, and, as the ducks mistook this moving skin for a live bird, they did not take alarm at its approach.

To-day the *gharra* usually fills the place of the bird's skin. The *gharra* has been described in the account of the *ganai*. The duck-snarer has the *gharra* he uses pierced with a number of holes, which serve as peep-holes. He breaks away sufficient of the *gharra* to leave a hole large enough to admit his head and then puts on the *gharra* as a diver dons his diver's headpiece. Having thus hidden his head, the fowler moves towards the ducks, keeping the lower part of the *gharra* in the water. In order that the ducks shall not take alarm at the approaching *gharra*, a number of these vessels are thrown at the beginning of the winter on to the lake, where they float for months. The water-fowl soon get used to these terra-cotta-coloured objects and pay no attention to them. The fowler wants to take his birds alive in order both that they shall arrive at the market fresh and that the Mohammedans can *halal* them after they have purchased them. It may be said for the benefit of those not acquainted with Mohammedanism that the Moslem religion prohibits the eating of the flesh of any animal that has not been *halaled*—that is to say, been killed by having its throat cut.

For these reasons the bird-catcher who has dragged a duck under water does not wring its neck. In order to be able to bring it on to land alive and not to have to go back to the bank every time he has secured a bird, he has invented a clever device. This, in the Punjab, consists of a small raft made of thin sticks arranged like trellis-work. This is usually triangular in shape, and to it are attached some loose strings. In the middle of it is cut a hole sufficiently large to admit a man's head. The duck-catcher puts his head through the hole in the trellis-work and then pulls the prepared *gharra* over his head and sallies forth into the water. He moves very slowly towards the ducks, and they, seeing only the innocent-looking *gharra*, allow the man to come into the midst of them. As soon as the fowler has pulled a duck under water, he ties the end of one of these strings to one of its legs and lets the astonished bird go. This rises to the surface and swims in the usual way. Usually it does not seem to notice the string round its leg, and even if it does discover that something is tugging at its leg it makes no fuss, evidently not considering that anything serious has happened. Thus the bird-catcher is able to seize and secure a number of duck before he returns to the shore. When he does, he of course drags with him all his tethered birds. Having untied these duck and put them in baskets, he again goes into the water. It is said that a man skilled in the work is able to capture in this manner several hundred birds in a day! In *jhils* of which the water is deep another method is adopted. Let me describe that which I saw being practised on the Suraha *jhil* in the Ballia district in the United Provinces. Near one end of the lake, where it is narrow, a net about fifty yards long

and twenty feet broad is stretched, just before dusk, a few feet above the water. Then the duck-catchers leave the *jhil*. About midnight they put out from the other end of the *jhil* in boats. Perhaps a dozen of these set forth. They move very slowly and without a sound towards the net. The duck are usually floating in the middle of the lake. As this operation is carried on only at times when the moon is not shining, the ducks are unable to see the boats when they are farther away than two or three yards. Although the boats creep through the water noiselessly, their motion appears to disturb the water sufficiently for the ducks to perceive the disturbance. This is so slight that the ducks do not take alarm and fly off the *jhil*, but they paddle gently away from the direction in which they detect the disturbance in the water; this means that they are being driven gradually and unconsciously towards the outstretched net. After the boats have thus been gliding towards the nets for about a couple of hours and the fowlers deem the ducks to be at the right distance from the net, the leader of the party calls softly and all the boats begin to move rapidly towards the ducks, which have by this time become somewhat crowded together. They take alarm, rise from the water, fly away from the boats, and a great many become entangled in the outstretched net. A successful drive may result in the capture of three hundred or more ducks. A most important thing is to give at exactly the right time the signal to the boats to move fast. If it be given too soon, many, if not all, of the ducks will have risen so high by the time they come to the net that they fly over it and thus escape.

If the water in the lake be so shallow as to make it

impossible for a wading man to take shelter under a *gharra*, the hunter sometimes hides himself behind a buffalo which he guides through the water, and thus contrives to get near enough to the duck to secure one or more. I must admit that I myself have never seen this. However, an anonymous writer, who styles himself "Raoul," vouches for it in his book, which bears the extraordinary title, *Small-Game Shooting in Bengal and some of their Habitat*.

"Raoul" is also my authority for stating that the Kashmiries train falcons to catch ducks and either bring them to the hunter or hold them down on the water till the duck-catcher comes up.

The noose is often resorted to in order to capture ducks and geese. Either strings from which are suspended large numbers of horsehair nooses are stretched over narrow pieces of water over which the birds pass in the evening when they are flying, or nooses are attached to pegs driven into the ground at places where geese are in the habit of feeding at night. The legs of the birds become entangled in these nooses.

Another method is to erect bamboos in the line of flight of geese when they come to their feeding grounds after dark. The geese, which fly at a great pace, do not see these obstacles, and some strike them so violently as to kill themselves.

C. T. Vigne, writing eighty years ago, says: "Wild-fowl, when migrating, are said to skim the tops of mountains between Kashmir and Yarkand so closely that in one gully in particular the natives conceal themselves and knock them down by throwing sticks at them as they pass."

CHAPTER IX

THE VALUE OF SHOOTING RECORDS

I REGRET that I kept no records of the game I shot in India. Owing to the failure to do so I missed collecting much information about the duck of Northern India. Almost all that I can say from original observation about the distribution of the duck in that part of the country is that certain ducks are very uncommon, that in the Fyzabad district the white-eyed pochard appears to be the commonest duck, in Ballia the red-crested pochard is perhaps the most abundant duck, while in the Pilibhit district the mallard appears to be the most numerous, and that the shoveller is more common in the Punjab than in, at any rate, the eastern districts of the United Provinces.

There can be no doubt that if even one sportsman in every hundred were to publish detailed records of his shoots we should learn a great many interesting facts about duck in India. Details of bags made after the great bulk of the duck have arrived indicate which species are the most numerous in any locality. Bags made early in the season give some idea of the order in which the various species arrive. Records extending over a series of years relating to any particular locality would certainly reveal some interesting habits of the various species of duck. As a concrete example of the value of shooting records those of Major C. H. Stockley may be cited (see p. 27). Many sportsmen keep game

registers, but, as these are rarely published, the observations contained therein are to a large extent lost.

Some years ago the Bombay Natural History Society invited sportsmen to send in annually records of game shot by them, with a view to adding to the sum of general knowledge of the distribution of duck and game-birds. The invitation did not meet with a very hearty response, and, instead of publishing in condensed form the records sent in, the Society contented itself with making some general observations regarding the shooting season for which the records were obtained. As a result the scheme failed to materialise in the manner that had been hoped for. I think I may safely say that the Bombay Natural History Society will gladly publish in their *Journal* any detailed records of duck shot. Some idea of the interest and value of such shooting records may be gathered from those of three localities which have come to my notice. The first is a record of duck shot in the Bhawalpur State from February 1922 to February 1925, which has been kindly furnished to us by Mr F. W. Kennaway, I.C.S. (see p. 55).

Among the interesting facts brought to light by this record of three and a half seasons, the following may be noticed:—

1. The mallard is the commonest duck in the Bhawalpur State, the common teal a poor second, the shoveller a bad third, with the gadwall not far behind.

2. The mallard is a late arrival : in the shoots of 27th and 28th October 1922 and 10th and 11th November 1924 very few were shot, while later big bags were made. The tufted pochard is another late comer ; not a single specimen was shot in October or November. On the other hand,

RECORD I

	1921-1922		1922-1923							1923-1924			1924-1925						Total	
	Feb. 4	Feb. 5	Oct. 27	Oct. 28	Dec. 29	Dec. 30	Jan. 27	Jan. 28	Feb. 21	Feb. 22	Dec. 13	Dec. 14	March 9	Nov. 10	Nov. 11	Dec. 28	Dec. 29	Feb. 7		Feb. 8
Ruddy Sheldrake	1	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	3
Shoveller . .	48	20	14	11	42	37	165	78	110	146	67	103	58	17	16	21	85	90	36	1164
Mallard . . .	114	22	3	7	262	232	576	493	173	61	244	380	44	3	7	267	208	327	261	3484
Spotted-bill Duck	1	15	...	...	7	...	10	4	1	7	7	4	22	...	...	8	1	6	14	107
Gadwall . . .	45	8	17	5	13	6	41	14	14	25	61	59	54	72	99	36	91	101	167	928
Marbled Duck .	...	3	2	...	...	...	3	1	...	3	1	7	...	1	2	8	...	1	2	33
Pintail . . .	2	...	3	1	3	7	5	7	7	5	...	3	3	...	...	5	8	6	7	72
Widgeon . . .	1	1	5	3	1	5	6	4	2	...	...	1	...	...	...	1	3	1	1	35
Common Teal .	208	67	37	30	15	89	225	175	130	49	108	187	52	132	240	45	478	200	100	2467
Garganey Teal .	..	...	3	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
Red-crested Pochard	3	...	...	...	...	...	5	1	...	2	3	12	9	2	4	14	1	6	8	70
Tufted Pochard .	69	...	...	...	14	8	3	9	6	14	...	2	5	...	...	...	...	22	32	184
Red-headed Pochard	73	18	7	1	30	15	62	40	16	11	34	12	1	2	2	27	20	8	10	389
White-eyed Pochard	16	20	82	31	8	5	66	17	61	12	4	15	1	70	125	40	18	50	30	605
Stiff-tailed Duck	4	...	...	...	...	...	...	...	18	5	...	...	...	...	...	...	...	1	12	40
Sniew . . .	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	2
Falcated Teal .	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Small Whistling Teal . . .	...	...	16	1	...	...	...	...	...	...	...	...	...	7	21	...	...	...	...	45
Large Whistling Teal . . .	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	2

the white-eyed pochard is an early arrival and then later passes to a large extent farther east or south.

3. The garganey teal is an early arrival, but only tarries in Bhawalpur while migrating. In this connection it is interesting to notice that Colonel Impey mentions that in 1908 the first duck noticed arriving on the Bharatpur *jhil* were garganey teal—on the 15th August. By the end of November they had been replaced by the common teal, but they returned in February and some remained until April.

4. All the stiff-tail ducks, save one, were shot in February.

5. Widgeon seem never to be abundant in Bhawalpur, but were more plentiful in the season 1922-1923 than in the other three. On the other hand, the red-crested pochard was less abundant than usual in the season 1922-1923.

6. The common teal were later in arriving than usual in the season 1922-1923.

The second record is that furnished by Mr W. B. Cotton, I.C.S., which appears on p. 803 of vol. xxii. of *The Journal of the Bombay Natural History Society*. It relates to the Basti District and the shooting seasons 1912-1913 and 1913-1914. The record relates to the bags made by the above-named sportsman (see p. 57).

As regards these statistics Mr Cotton writes: "It is certain that 1913-1914 has been a better year for sportsmen than 1912-1913. The drought in Northern India has driven down birds in large numbers that usually winter in colder climates. It is instructive that there should be fewer white-eyed pochards in 1913-1914 than in the previous year. These birds want plenty of water and do not mind the heat, so are presumably in Lower Bengal. However,

THE VALUE OF SHOOTING RECORDS 57

the birds that feed on the surface, such as gadwall, pintail, widgeon, mallard, found water enough in Basti for all their necessities, and hence are here in exceptional numbers."

The third series of records relates to Burma (see p. 58). They are published on p. 1088 of vol. xxi. of *The Journal*

RECORD II

Name of Duck	Number shot in 1912-1913	Number shot in 1913- 1914 up to January 9
Mallard	2	5
Gadwall	11	52
Common Teal	17	57
Garganey Teal	13	7
Red-crested Pochard	11	11
White-eyed Pochard	71	32
Common Pochard	1	6
Tufted Duck	1	1
Spotted-bill Duck . . . .	...	2
Pintail . . . .	...	7
Widgeon . . . .	...	6
Total	127	186

of the *Bombay Natural History Society*, and on p. 400 of vol. xxii.

These records bring out the following facts:—

(1) The marked variations in the number of the same species at the same period in the same locality in consecutive years—e.g. the garganey teal at Shwepi in 1895 and 1896.

(2) The abundance of the tufted duck, garganey teal, common teal and pintail in Burma.

(3) The absence, or rarity, in Burma of the mallard and the red-crested pochard.

The Table on page 59 shows roughly what an average bag may be expected to consist of in various parts of India.

They are estimates based, in the case of the U.P., on the figures (given above) furnished by Mr Cotton and my own experience; in the case of Kathiawar, on the shooting

RECORD III

	Number of Duck shot at Shwepi		Number of Duck shot at Tongyi		Number of Duck shot at Ngaungwum	
	Christmas		Christmas		Christmas	
	1895	1896	1911	1912	1911	1912
Brahminy Duck . . .	6	...	4	1	2	1
Comb Duck	1	...	...	2	...	...
Spotted Bill	9	10	35	12	4	8
Chinese Grey Duck . .	..	...	1	...	..	...
Pintail	41	39	18	7	9	13
Gadwall	41	20	1	7	...	...
Widgeon	4	4	1	..	..	...
Shoveller	34	35	1	6	1	4
Tufted Duck	53	122	19	15	64	36
Pochard . . . . .	...	3	...	...	...	...
White-eyed Pochard . .	18	20	3	5	..	...
Common Teal	52	41	36	26	10	68
Garganey Teal	23	142	22	39	...	7
Cotton Teal	0	29	..	11	...	...
Lesser Whistling Teal .	2 ¹	51 ¹	...	15	...	...
Total	284	516	141	146	90	137

returns for the season 1909-1910 sent in by Captain S. A. Mosse (see p. 856 of vol. xx. of *The Journal of the Bombay Natural History Society*), and in the case of Burma and Bhawalpur, on the shooting records reproduced above.

The bags on the same *jhil* will vary considerably, not

¹ Species not given.

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only from year to year, but from week to week in the same season.

The figures indicate roughly the results of a whole season's shooting in a normal year.

Table showing for various parts of India approximately the proportions of the commoner Ducks likely to be shot in a normal season

Name of Duck	Number of Duck out of a Total of 1000 shot in one season at			
	Bhawalpur	Kathiawar	U P (East)	North Burma
Mallard	350	60	110	...
Gadwall	95	190	150	50
Common Teal	250	260	200	180
Garganey Teal	0.4	10	50	170
Red-crested Pochard	7	7	80	...
White-eyed Pochard	60	70	270	35
Pochard	40	...	15	0.3
Tufted Pochard	20	17	26	220
Pintail	7	120	40	90
Widgeon	4	90	16	1
Spotted-bill Duck	10	120	6	60
Cotton Teal . . . . .	...	...	...	30
Lesser Whistling Teal	45	7	4	45
Comb Duck . . . . .	...	...	...	5
Brahminy Duck ¹	0.3	..	...	18
Marbled Duck	3	...	...	...
Stiff-tailed Duck	4	...	...	...
Shoveller ²	120	135	30	50

In order to enable the sportsman to ascertain at a glance whether any ducks which he has shot or seen are

¹ This does not indicate properly the abundance of the Brahminy Duck, because this last affects rivers rather than *jhils*, and, not being a good table bird, is very little shot.

² This does not indicate properly the abundance of this bird, as it largely frequents village ponds, and, not being good eating, is not much shot.

rare or in an unusual or unrecorded locality, the following Table has been compiled:—

<i>Name of Duck</i>	<i>Locality where Rare or from which not hitherto Recorded</i>
Mallard	Rajputana, Bombay, Central Provinces, South India, Burma and Ceylon
Pintail	Central India and South Tenasserim
Gadwall	Madras Presidency and Ceylon
Widgeon	Madras Presidency, Ceylon, South Tenasserim
Shoveller	Pegu, Tenasserim
Sheldrake	All parts of the Indian Empire
Brahminy Duck . .	Madras Presidency, Ceylon, South Burma
Common Teal . . .	South Tenasserim
Bronze-capped Teal .	Every part of India, Burma, Ceylon and Kashmir
Clucking Teal. . .	Every part of India, Burma, Ceylon and Kashmir
Mandarin Duck . .	Every part of India, Burma, Ceylon and Kashmir
Marbled Duck . . .	Every part of India, Burma, Ceylon and Kashmir
Chinese Grey Duck .	Every part of India, Burma, Ceylon and Kashmir
Comb Duck	North-West Frontier Prov- ince, Punjab, Sind, South India, Ceylon

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White - winged Wood Duck	N.W.F.P., Punjab U.P., Western Bengal, Rajputana, Sind, Central India, Bombay and Madras Presidencies
Pink-headed Duck	All parts of India other than Western Bengal, Burma, Ceylon
Common Whistling Teal.	Punjab, N.W.F.P.
Large Whistling Teal . .	N.W.F.P., Punjab U.P., Sind, Central India, Bombay and Madras Presidencies, South Burma, Ceylon
Cotton Teal	N.W.F.P., Punjab, Sind, Central India, Bombay and Madras Presidencies
Pochard	Bengal, Mysore, Bombay and Madras Presidencies and Ceylon
Tufted Pochard	Southern Bombay, South Burma, Madras Presidency and Ceylon
Red-crested Pochard . .	India, south of the Godavari, Burma
White-eyed Pochard . .	India south of the Kistna
Baer's White-eyed Pochard	Every part of India, Burma, Ceylon and Kashmir
Golden-eye	Every part of India, Burma, Ceylon and Kashmir
Scaup	Every part of India, Burma, Ceylon and Kashmir
Stiff-tail	Every part of India, Burma, Ceylon and Kashmir

PART II
DUCKS IN PARTICULAR
A.—THE RESIDENT DUCKS

A.—THE RESIDENT DUCKS

MOST of the ducks shot in India are merely winter visitors to the country and go elsewhere to breed. Some go as far afield as Siberia, others breed as near as Kashmir or Baluchistan. A few of the migratory duck may possibly on very rare occasions stay behind to breed. For these reasons I use the words Resident Ducks in a restricted sense to denote those which usually nest in the plains of India, and, in the case of the Andaman teal, in the Andaman Islands.

These resident ducks are :

The Spotted-bill or Grey Duck.

The Comb Duck or Nukta.

The White-winged Wood Duck.

The Pink-headed Duck.

The Common or Lesser Whistling Teal.

The Large Whistling Teal.

The Cotton Teal.

The Andaman Teal.

CHAPTER X

THE SPOTTED-BILL DUCK

SCIENTIFIC NAMES

LATEST NAMES.¹—For the Western Race: *Anas poecilorhyncha poecilorhyncha*. For the Eastern Race: *Anas poecilorhyncha haringtoni*.

EARLIER NAMES. — *Anas poecilorhyncha*. *Polionetta poecilorhyncha*.

¹ Ornithological classification and nomenclature have undergone numerous changes, which are apt to embarrass the sportsman and the field naturalist. As regards India, the terminology of Dr Jerdon was adopted by most writers until the appearance of the *Birds of India* by Oates and Blanford led to a great change in the nomenclature. The *Birds of India* is now being revised by Mr E. C. Stuart Baker, and the new volumes are appearing one by one. Mr Baker has made two considerable changes: First he has introduced the trinomial system, which gives a special name to each local race of those species which have split up into local races; such birds have three parts to the name: the first indicating the genus to which the species belongs, the second indicating the species, and the third the sub-species, or local race. Thus Oates, in the first edition of the *Birds of India*, called the spotted-bill duck *Anas poecilorhyncha*, whether it belonged to the western or the eastern race, while Stuart Baker calls the western race *Anas poecilorhyncha poecilorhyncha* and the eastern race, or sub-species, *Anas poecilorhyncha haringtoni*. Secondly, Mr Stuart Baker has altered the names of many birds. He gives the following explanation of this in his Introduction to the *Birds of India* (vol. i., p. 2): "The second point to which reference must be made is the unfortunate necessity which has arisen for very numerous corrections in Oates' nomenclature. Such corrections cannot but be a source of some difficulty to the older race of field naturalists, and students who have learnt these names will now have to learn those which replace them. The younger generation will, however, have the satisfaction of knowing that they are learning names which, with a few exceptions, will

ENGLISH NAMES

The Spot-bill. The Spotted-bill Duck. The Grey Duck. The Eastern Grey Duck.

VERNACULAR NAMES

Garm-pai, Gugral, Bata, Batak, Hunjur (N. India). Naddun (Nepal Terai). Kara (Manipur). Vum-be (Burma).

DESCRIPTION

Length, 24 in. ; tail, 4 in. ; wing, 11 in. ; bill, $2\frac{1}{2}$ in.

Sexes alike.

The appearance of the drake does not change after the summer moult.

A dull-plumaged, mottled brown duck, like the female of most species in which the drake has bright plumage.

Top of head, back of neck and a band through the eye dark brown, remainder of head cream-colour, finely streaked with brown. Rest of upper plumage brown, the feathers of the upper back having pale margins, giving the plumage a scaly or mottled appearance ; the brown is darkest on the rump and tail. A metallic green wing-band or speculum, glossed with purple, narrowly margined in front and behind with black and white. The white in

be permanent, for with strict adherence to the laws of priority, a time will soon come when we shall really have arrived at the bedrock of nomenclatural research."

In the present work I have given for each species, under the heading "latest name," the name which appears in Stuart Baker's *Hand List of the Birds of India*, and under the heading "earlier names" those used by the earlier writers. Thus those sportsmen who have Hume and Marshall, or Stuart Baker's earlier book, or those of Finn, Oates, or other writers, will be able to identify the ducks in them.



SPOTTED BILL DUCK

the wing shows up when the bird is in the water and enables the sportsman to identify the duck when it is at too great a distance for him to make out the yellow tip to the bill. Forepart of belly cream-colour with dark spots; posteriorly these spots become larger so that they almost obliterate the white. Legs and feet bright red. Base of bill black, front part bright yellow. A pair of red spots at the base of the upper chap in front of the eyes. (Some of the spotted-bills found in Burma have no red spots or very faint ones. Such birds are rather smaller. They constitute a local race, or possibly are the result of crossing with the eastern or Chinese spot-bill, which has no red spots and which has the speculum blue. Modern systematists have made a separate sub-species of these Burmese spotted-bills; they call them *Anas poecilorhyncha haringtoni*. This race extends into the eastern parts of Assam.)

DISTRIBUTION

The spotted-bill is practically confined to India and is found in all parts of the Indian Empire, but is not common round Calcutta and in Arakan. It is rare in Kashmir.

HABITS

Spotted-bills are usually seen in pairs or in small parties. They are confined to fresh water, and seem to prefer small lakes to large ones. I do not remember ever seeing a spotted-bill on the Ganges, but it is said to occur commonly on the Jhelum, Chenab, Indus and Brahmaputra.

Although the spotted-bill does not belong to the class of diving ducks, it can dive well, as many a sportsman who has wounded one has discovered.

Its call is not unlike that of the mallard. It is a very good table bird. It is comparatively easy to shoot, as it is rather slow in getting off the water, and is less wary than some ducks.

FOOD

According to A. O. Hume and E. C. Stuart Baker, the spotted-bill is mainly a vegetable feeder. Hume writes: "I have often examined birds that had fed on vegetable matter only." Stuart Baker writes (*Indian Ducks and their Allies*): "They are principally vegetable feeders, and do a great deal of damage to rice, both when young and when in the ear, trampling down a great deal more than they eat." Both these authorities, however, admit that the spotted-bill also eats molluscs, frogs, worms and insects.

The examination of three stomachs made by Mason on 12th January 1908 indicates that the food of this species is less vegetable than Hume and Stuart Baker assert it to be.

1st Stomach contained a few small snails.

2nd Stomach contained one small water-snail and some vegetable matter.

3rd Stomach contained one frog, three small snails, some vegetable matter.

NIDIFICATION

Seeing that this duck is so widely distributed in India, it is surprising that there is not more on record regarding its nesting habits. In all parts of its habitat, except Sind, where it is said to breed in April and May, it nests during the monsoon. In most cases the nest is situated on the ground, in thick grass. Occasionally it is placed on a low bough of a tree. This duck has bred in captivity in the Calcutta and Lahore Zoological Gardens. The

usual nesting site seems to be a reedy islet in some quiet *jhil*. The bird plucks grass, which it makes into a cup about nine inches in diameter and three in depth. This is usually lined with down. Seven or eight eggs are commonly laid ; the shell is white, often slightly tinted with grey. The colour becomes darker as incubation proceeds.

The spotted-bills in the Lahore Zoological Gardens thrive splendidly, and, as has been mentioned, have bred there. The nest was on the ground on one of the islets in the middle of the small lake and within a dozen yards of a much-frequented road.

CHAPTER XI

THE COMB DUCK

SCIENTIFIC NAMES

LATEST NAME.—*Sarcidiornis melanota*.

EARLIER NAMES.—*Sarcidiornis melanotus*. *Sarcidiornis melanonotus*. *Sarcidiornis melanonota*. *Sarkidiornis melanotus*. *Anser melanotus*.

ENGLISH NAMES

Comb Duck. Nukta. Black-backed Goose (Jerdon).

VERNACULAR NAMES

Nukta (Northern and Central India). Nukwa (Chota Nagpur). Nakihānsa (Orissa). Jutu chilluwa, Dod sarle haki, Neerkoli (South India). Tau-bai (Burma).

DESCRIPTION

Length, 30 in. ; wing, 15 in. ; tail, $5\frac{1}{2}$ in. ; bill, $2\frac{3}{4}$ in.

The sexes are alike, except that the female is the smaller and she lacks the fleshy knob on the bill. Mr Wright's plate depicts a drake.

Head and neck white with numerous small black spots and dots, thickest on the crown and down the middle of the back of the neck. The spotted head gives the bird the appearance of being a mongrel farmyard product rather than a true species. The sides of the nape are often tinged with yellow. The back, wings and tail are glossy black ;

the black has a beautiful sheen, which is purple on the shoulders, bronze on some of the wing feathers and green in other parts. A thin black line extends from the back down each side of the breast for about four inches. There are similar thin black bands from the rump to the lower flanks. The sides of the breast and the flanks are pale grey. The rest of the lower plumage is white, with a bright yellow patch on each side behind the posterior black bands. The bill and legs are black. The male has a black fleshy knob, semicircular in shape, growing from the top of the bill, causing this last to look as if a piece of black indiarubber had been stuck on to the upper mandible. This constitutes the comb. At the breeding season the comb is erect ; at other times it is flabby and hangs down.

The appearance of the plumage of this duck, unlike that of most ducks, does not change with the season.

Young birds are dark brown where the adults are black, and the lower parts have a reddish tint.

Appearance on the Wing.—When flying, this bird looks like a white goose with black wings. It is impossible to mistake it for any other duck.

DISTRIBUTION

The comb duck, although it is found in South Africa and Madagascar, does not occur in all parts of India. It is not common in the Punjab or in South India, but is found in Ceylon and Burma. It occurs chiefly in parts of the country, such as Oudh, where trees and water are abundant. Blanford is not correct in stating that the bird is rare or wanting in Sind.

HABITS

The comb duck does not occur in large flocks, as many duck do. It is rare to see a larger party than ten. I am inclined to think that the birds pair for life, and that they go about in couples. When a larger number are seen they usually consist of parents and their offspring. Bigger flocks, however, do occur—for example, Mr S. Basil-Edwardes records having seen near Allahabad a party composed of thirty-three individuals. The comb duck likes *jhils* which contain plenty of rushes and have trees growing on the banks. I have never seen a comb duck on a river in India. It is not a very wary bird, and as its flight is less rapid than that of most ducks, it is comparatively easy to shoot; but when shot it is not a great delicacy.

It is a silent bird. I do not remember having heard it call either in captivity or in the wild state. The call of the male is said to be a grating sound, while that of the female is variously described as goose-like and as a low guttural quack.

FOOD

Theobald declares that the comb duck visits rice-fields to feed on the grain, and Tickell writes, "at night they roam over the paddy stubble, and I have found their stomachs full of rice during the harvest."

Hume, however, writes: "They do not visit, as a rule, or rob our fields much in Upper India: I have never found any grain but wild rice seed in their stomachs, and only once or twice have I seen them browsing on the turf near the water's edge." He adds: "Their food



COMB DUCK

consists chiefly of tender shoots and seeds of aquatic herbage, worms, larvæ of water-insects, small shells, fresh-water crustacea, and occasionally a tiny fish or two."

NIDIFICATION

Although the comb duck does not leave India to breed, it moves about from one place to another. It nests in the United Provinces as far west as Meerut, in Central India, the Panch Mahals, Burma and Ceylon. In India it breeds in the rains. In Ceylon it is said to nidificate in February and March.

The nest is a collection of twigs, grass, dead leaves, down feathers, etc., usually placed in a hole in a tree, sometimes in a cleft between two branches. Mango-trees are the ones mostly selected for nesting purposes. There are cases on record of the nest being in holes in ruins, and even among rushes.

Colonel G. F. L. Marshall records (Hume's *Nests and Eggs of Indian Birds*, vol. iii., p. 283) finding an egg of this duck in the nest of a stork (*Dissura episcopus*) along with three eggs of the latter bird

The eggs are creamy white. The number of the clutch seems to be nine or ten. Sometimes the same nest appears to be used by more than one pair of birds.

Many years ago Mr A. Anderson wrote: "I was present at the capture of a female nukta on her nest, which yielded the extraordinary number of forty eggs! Of course it is just possible, though highly improbable, that this may have been the joint produce of two birds; but the emaciated condition of the one captured, coupled with the fact that one egg was an abnormally small one, and evidently her last effort, do not favour such a supposition.

"The tree selected was an ancient banyan (*Ficus indica*), which overlooked a large sheet of water several miles in circumference; the nest hole was at an elevation of some 20 feet, 3 feet deep, and 2 feet in circumference.

"The eggs were laid several tiers deep. . . ."

In 1920 Mr T. R. Livesey found a nest at Kotah in Rajputana containing forty-seven eggs. He took a photograph of this nest, which was published in vol. xxvii. of *The Journal of the Bombay Natural History Society*. Of these eggs about a dozen were fresh and the rest had been sat on for from ten to thirteen days. He therefore thinks that the clutch were the product of two or three females, if not more. He hatched out several of the eggs under a hen. There are in the Lahore Zoological Gardens (or were in 1923) two comb duck males which came out of eggs hatched by a fowl. These birds were hatched in 1919, and were four years old when I left Lahore.

CHAPTER XII

THE WHITE-WINGED WOOD DUCK

SCIENTIFIC NAMES

LATEST NAME.—*Asarcornis scutulata*.

EARLIER NAMES.—*Asarcornis scutulatus*. *Asarcornis leucoptera*. *Casarca scutulata*. *Casarca leucoptera*. *Sarcidiornis leucopterus*. *Anas scutulata*. *Anas leucoptera*.

VERNACULAR NAME

Deo-hāns (Assam).

DESCRIPTION

Length, 32 in. ; tail, 6 in. ; wing, 15 in. ; bill, 2 $\frac{3}{4}$ in.

The sexes are alike, except that the hen is smaller and the colouring of her plumage is duller.

The head and neck are white with numerous black spots, which are thickest on the back of head and neck. (*N.B.*—This and the comb duck are the only Indian species which have the head thus marked.) The lower neck, shoulders, back, wings and tail are dark brown—darkest on the neck—glossed with green. The lower parts are brown, washed with rusty red. The front portion of the wing is white, the outer and inner quill feathers (primaries and tertiaries) are brown, and the middle ones (secondaries) are blue-grey. In the closed wing there is a narrow black crossband behind the white.

The bill and legs are yellow, sometimes deep orange.

The bill is spotted with black, especially at each end ; the base and tip of the bill are black. The feet, and sometimes the legs, are mottled with green. At the breeding season the base of the bill becomes considerably swollen and the orange-colour changes to deep orange-red or light red. This species bears a general resemblance to the comb duck. The two, however, may be distinguished at a glance by the following differences:—

Comb Duck	White-winged Wood Duck
<i>Bill and Legs.</i> Blackish . . .	Yellow or orange.
<i>Wing.</i> No white in wing . . .	White in wing.
<i>Under Parts.</i> White . . .	Brown, tinted with red.

Appearance on the Wing.—Looks like a goose with dark body and light coloured wings.

DISTRIBUTION

Although stragglers occasionally occur in Bengal, or even farther west, this duck is not usually seen west of Assam. It appears to be fairly common in Eastern Assam, Upper Burma and North Arakan. In South Burma and Tenasserim it is less abundant. Its range extends eastwards to Java.

HABITS

This duck is of considerable interest, as there can be little doubt that it is becoming extinct. It is one of those species which is not flourishing in the struggle for existence. This is proved by its very limited range and the fact that it seems nowhere to be abundant. The measure of success of any species of bird, beast, reptile, etc., is that of numbers. The most flourishing species are the most

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numerous and are usually widespread. The species which are going under occur in diminishing numbers, and, year by year, their range becomes more restricted, until only a handful survive in some locality and, finally, some natural calamity, such as drought, occurs, which completes the extermination of the species. The white-winged wood duck seems to be nearing extinction.

Many causes are doubtless contributing to this. One of the chief of these is man. Owing to the establishment of British rule in India the human population has been quadrupled in the last one hundred and twenty-five years and vast areas of marshy land have been brought under cultivation. As ducks and their eggs are taken as food by man, this increase of the human population of India has led to the diminution in numbers of every species of resident duck. Some resident species, such as the spotted-bill, lesser whistling and cotton teals, are still fairly abundant. Thus it follows that the white-winged wood duck must have certain weak points which are the cause of its being so rare. Some of these appear to be a delicate constitution, indifferent powers of flight, timid disposition and inability to dive when attacked by a large bird of prey ; further, it seems unable to live on water-weeds. It does not stand heat well, and should therefore migrate from India in the spring to avoid the heat : that it does not do so would appear to be the result of lack of wing-power. Although it is six inches longer than the brahminy duck, the wood duck has wings about the same size as those of that species. I can find nothing on record regarding the flight of the wood duck, but I venture to suggest that observation will show it to be far from swift or strong.

In captivity the wood duck shows itself mild and not

given to fighting. Like every other duck, it is not able to fly for about fifteen days during the summer moult. It has then, therefore, to retire to forest country. Thus its range must of necessity be exceedingly restricted.

In view of the above, it is not surprising that white-winged wood ducks keep chiefly to small patches of water in forest, where they are comparatively immune from attack by birds of prey. They occasionally occur on the larger streams. Big flocks are rarely, if ever, seen.

The call of the drake is said to be trumpet-like, and that of the duck a subdued quack. Like the cotton teal, the wood duck frequently perches in trees.

FOOD

The little knowledge we possess of the feeding habits of this duck we owe to Mr E. C. Stuart Baker, who kept it in captivity. He writes (*Indian Ducks and their Allies*, p. 48): "My birds were practically omnivorous, but would touch no dead animal food. . . . Green food of all sorts they refused unless very hungry, and I could never induce them to eat any sort of water-weed." They would eat small fish, worms, grasshoppers, frogs and snails, if alive. They took paddy and husked rice, but preferred animal food to grain.

NIDIFICATION

Although the white-winged wood duck nests within a couple of hundred miles of Calcutta, there is nothing authentic on record regarding its nidification. I pointed this out in an article contributed to *The Statesman* in April 1923, and suggested that some sportsmen might, in preference to visiting a hill-station, spend leave in the rains in

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investigating the nesting habits of this species and the pink-headed duck. So far no one seems to have acted on this suggestion. I hope that some of the naturalists and sportsmen who live in Burma or Assam will make it their business to try to discover something about this duck. A promise of a few rupees to an Indian shikari for any nests shown might easily result in important discoveries.

CHAPTER XIII

THE PINK-HEADED DUCK

SCIENTIFIC NAMES

LATEST NAME.—*Rhodonessa caryophyllacea*.

EARLIER NAME.—*Anas caryophyllacea*.

VERNACULAR NAMES

Lāl sira, Gūlāb-lāl-sir (U.P.). Sāknāl (Bengal).
Dūmrar, Dūmār (Terai).

DESCRIPTION

Length, $23\frac{1}{2}$ in. ; tail, $3\frac{1}{2}$ in. ; wing, 11 in. ; bill, $2\frac{1}{4}$ in.

Drake in Full Plumage.—Head and neck rosy pink, except for a chocolate-brown band along the chin and throat, which runs into the chocolate-brown of the body. The wings are brown, tipped with white. The wing lining is beautiful pale pink. Bill, rich pink, with a round nostril. Legs and feet black tinged with red. The neck is long ; it looks very long when the bird is flying, and gives it somewhat the appearance of the pintail duck.

Drake in Eclipse Plumage.—The only change is that the drake assumes a brown band along the crown, like that of the duck.

Duck.—The duck is a dull edition of the drake, but she has a brown streak on the crown instead of on the chin. Her bill is black, tinted with red.

On the wing the bird is recognised by the long neck and the rose-tinted wing lining.

DISTRIBUTION

The pink-headed duck does not occur outside India. In India its distribution is restricted. It has been found as far west as the Gurdaspur district in the Punjab and as far east as Bhamo in Burma. Southwards it has been taken near Madras.

The only parts of India where it is at all common are Bihar and Western Bengal. Its appearance outside Bengal is sufficiently rare as to make it worth recording.

HABITS

Except at the nesting season the pink-headed duck goes about in small parties and seems most addicted to considerable sheets of water in which grow plenty of plants. It sometimes associates with whistling teal. It flies well.

Mr Turner, who shot a pink-headed drake on a *jhil* eleven miles from Shahjahanpur in February 1923, writes : "The first couple of shots put up about a thousand birds, and a flight of white-eyed pochard swung round over me, amongst them being a duck which appeared to me to be a pintail by its flight. I picked him out and dropped him, and, as soon as I saw him on the water, knew what he was ; I waded out to him and he made no attempt to get away.

"On taking him into Shahjahanpur I immediately confirmed that he was the bird I had taken him for—the pink-headed duck—a drake in full plumage. Hume and Marshall's plate is true, but does not show the beautiful shell-pink of the whole under wing, nor give a true idea of the length of the neck, which during flight and after death seemed much longer than the plate makes it. The bill is a lovely pink, with very round nostrils."

This beautiful bird, like the white-headed wood duck,

appears to be a species which is going under in the struggle for existence. It was formerly far more abundant than it now is. Apparently not many years ago it used to breed in Oudh, for Mr W. Jesse, in his account of the birds of Lucknow, writes (*Ibis*, 1903): "The native fowlers say that it is more often met with in the 'rains.'"

Swinhoe and Barnes state (*Ibis*, 1885) that in the eighties it was very plentiful in Lake Depalpur (Central India) during the winter months. This is no longer the case.

Jerdon wrote in 1864 (*Birds of India*, vol. iii., p. 801): "This very lovely duck is most common in parts of Bengal, but is found at times throughout Northern India, is rare in the North-West Provinces, and still more so in Central and Southern India. I have procured it rarely as far south as Madras, but it is only since I have visited Bengal that I have seen it in its native haunts. . . . This duck is said also to occur in Burma."

In six winters Hume obtained five dead specimens in the Calcutta market. In 1923 an offer of one hundred rupees for each duck delivered sound to Calcutta did not bring forth a single specimen.

Mr J. A. Bucknall (*Ibis*, 1924, p. 146) states that there are records of the pink-headed duck being shot once in 1921, twice in 1922 and three times in 1923. In 1923 several were seen together. "Its virtual extinction," he writes, "is, I imagine, due to a variety of causes: it is non-migratory and confined to India, and consequently was shot *all the year* by those to whom a close season is a dead letter. There are probably more fowling-pieces among the eyots than there were forty years ago. Then, too, vast areas of swampy ground have been brought under cultivation within

the last half century ; and with more folk settled near its haunts and constantly cutting reeds and grass, its nest and eggs (no doubt excellent eating) stand little or less chance of not being discovered. I do not think it is improbable that (like the white-winged wood duck) it moults in the autumn and for a short period completely loses its power of flight—a circumstance which would be another serious disability to its economy.”

It is to be hoped that, on account of its rarity, sportsmen will refrain from shooting this bird when they come across it, and be content to record having seen it. Its plumage is so distinctive on the wing that it is impossible to mistake it for any other duck.

FOOD

Mr C. M. Inglis found in the stomach of a pink-headed duck shot by him some shells and the remains of a small crab.

Mr F. A. Shillingford observed in the stomach examined half-digested water-weeds and various kinds of small shells.

NIDIFICATION

Although scores of pink-headed duck must breed annually in India, only two people have recorded finding the nest ; these are Messrs F. A. Shillingford and T. Hill. That this should be the case in a country like India, which contains a large number of Englishmen and others interested in natural history, seems well-nigh incredible. As in the case of the wood duck, it is probable that sportsmen have come upon the nest of this bird, but have not taken the trouble to describe their find, in either one of the daily papers or *The Journal of the Bombay Natural History Society*, because they were not aware how little is known of the

nesting habits of this fine duck. I hope that this book will stimulate sportsmen or naturalists to discover nests and record observations.

The nest found by Mr Hill on 3rd July in the Purnea district was well hidden in tall grass about four hundred yards from a nullah containing water. It was neatly formed, made of dry grass interspersed with a few feathers; the interior portion was circular, and about nine inches in diameter and four or five inches deep. It contained nine eggs. Both male and female were flushed from the vicinity of the nest.

Shillingford, who found a number of nests in the Malda district, confirms the above account. He says that the nests are seldom five hundred yards from water and the clutch of eggs varies from five to ten.

Hume gives the following account of the eggs: "Quite unlike those of any other duck with which I am acquainted. In shape they are very nearly spherical: indeed one is almost a perfect sphere. The shell is very close and compact, but not particularly smooth or satiny to the touch, and is entirely devoid of gloss. In colour it is a dull, nearly pure white, with here and there traces of an extremely faint yellowish mottling, probably the result of dirt. Even held up against the light the shell is white, with a scarcely perceptible ivory tinge.

"The five eggs sent me by Mr Shillingford measure as follows:—1·82 by 1·7, 1·78 by 1·68, 1·8 by 1·62, 1·71 by 1·69, 1·81 by 1·61 in."

The young are fledged in September or October.

Shillingford records that if a human being approaches the pink-headed duck when she has young she behaves as though she were injured.

CHAPTER XIV

THE LESSER WHISTLING TEAL

SCIENTIFIC NAMES

LATEST NAME.—*Dendrocygna javanica*.

EARLIER NAMES.—*Dendrocygna javanica*. *Dendrocygna arcuata*. *Dendrocygna awsuree*. *Mareca awsuree*. *Anas arcuata*.

ENGLISH NAMES

Lesser Whistling Teal. Common Whistling Teal.

VERNACULAR NAMES

Chola Silai, Silhi, Silhāhi (U.P.). Saral, Sharul (Bengal). Horalī (Assam). Hansrali (Orissa). Chui (Central India). Yerra Chilluwa, Yerrundi, Chemba Tara (S. India). Saaru, Tatta Saaru (Ceylon). Si-sa-li (Burma).

Most of the above names are onomatopoetic.

DESCRIPTION

Length, 17 in. ; tail, 2 in. ; wing, $7\frac{1}{2}$ in. ; bill, $1\frac{1}{4}$ in.

The sexes are alike, and there is very little change of appearance in consequence of the summer moult.

A dull-looking duck. The plumage is mainly brown, pale on the head, dark on the back and shoulders, almost black on the lower back. The quills are black, the shoulders are chestnut, as are the feathers above the tail. The throat is almost white, the rest of the lower parts are

the colour of rust, except the patch of feathers under the tail, which is white. The brown feathers of the upper back have pale reddish brown margins, giving that part of the body a scaly or mottled appearance. Legs and bill grey-brown, the nail of the bill being almost black. The eyes are brown, with a yellow ring round each. The tail is short and rounded.

Appearance on the Wing.—When seen on the wing this bird would never be taken for a duck by anyone not acquainted with it. A characteristic of an ordinary duck is the rather long pointed wing, the first primary (flight feather) being the longest feather. The wing of the whistling teal (also of the larger whistling teal) is broad and rounded at the tip. As a flock of whistling teal comes flapping slowly overhead within a few yards of the muzzle of the gun, and uttering a wheezy whistle, the novice is likely to let them pass unmolested, as he takes them for one of the many fowls which the Indian shikari calls *kuch-nēs*. The body is not "tubby" like that of most ducks, but slim. The wings look black and the body brown when the birds are flying.

DISTRIBUTION

The common whistling teal is likely to be seen in any well-watered locality south-east of a line drawn from Karachi to Amballa, but it appears to be very capricious in its distribution. Writing of Travancore, T. F. Bourdillon says: "I saw hundreds in April 1902, but in December 1903 in the same place not a single one was found." I believe that it has been shot in the Punjab, but I have never met with it there. It is, however, fairly common in the Bhawalpur State. I can find no record of its occurring



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in Kashmir. It is found in Ceylon, Burma, the Andamans and the Nicobars. Its range extends as far east as Java.

HABITS

The lesser whistling teal is a permanent resident in India. In the breeding season, which is the monsoon, it extends its range into districts where the *jhils* dry up in winter. This local migration is probably caused by considerations of food-supply. As has been stated on page 32, the population of each species of bird is considerably increased at the time the young hatch out, and it may often happen that an area which affords ample food-supply for the adult population does not produce sufficient to feed the growing young as well.

Whistling teal are, I believe, found only in fresh water. They seem to prefer *jhils* that are well grown with wild rice or rushes. My experience (which has been chiefly in the United Provinces) is that whistling teal usually occur in flocks of fifty or a hundred, and these remain on the *jhil*, flying in circles, long after all the other ducks have left. I have never visited the Moolna Bhil, where Stuart Baker has seen them in hundreds of thousands, and where they seem to be very wild.

Wounded whistling teal dive almost as well as pochards, so that, although easy to hit, they are often difficult to recover in the *jhils* overgrown with vegetation, which are their favourite haunts.

They are fond of perching in trees, and seem usually to roost in these, but I have never noticed them resting in them in the daytime as Hume describes.

Whistling teal are easily tamed and make excellent pets. A captive teal will follow its master about as a grey

partridge does. It is a good walker, the legs being longer than those of most ducks. It is not a good table bird.

FOOD

Hume, who states that he has dissected many whistling teal, says : "As a general rule they feed principally . . . on vegetable substances"—especially rice, wild and cultivated, which they devour most greedily, also water-plants, grass, bulbs, corms, etc. Hume also found in their stomachs small shells, worms, insects and fish.

Cripps states : "This species is often seen on freshly ploughed paddy-fields, evidently feeding on the grains of paddy that have been left above ground after sowing."

Stuart Baker states (*Indian Ducks and their Allies*, p. 103) that they feed on anything and everything, but bring up their young principally on animal food, and they themselves, in the adult state, probably prefer vegetable food. They graze often in the rice-fields, but only when the plant is very young, and he has seen them grazing on the coarse dhub-grass which often grows on sandy spots at the edges of *jhils* in the cold weather. Stuart Baker also discovered that this species eats "large quantities of a very small fresh-water snail."

NIDIFICATION

This species seems to nest in all parts of its range, and of course it breeds during the rains. In the United Provinces eggs are likely to be found in the latter part of July and the whole of August. In Sind, South India and Ceylon the nesting season is rather earlier. Mr Doig found a nest with ten fresh eggs in Sind on 22nd June.

On the other hand, J. Davidson, in the Panch Mahals, found several nests in September and October.

The lesser whistling teal is so catholic in its taste for nesting sites that the species cannot be said to have a preference for any particular description of site. Perhaps most of the nests are in trees—in hollows, in forks of the larger branches, or in old nests of crows, kites, herons, etc. Many nests however are found on or near the ground in thorny scrub, grass, wild rice, cane-brakes, bulrushes, etc. Nor is the nest invariably near water. In the Pilibhit district Mr L. Macdowell found on 31st August 1913 a nest containing ten hard-set eggs fully a mile from water. Mr S. G. de C. Ireland, I.C.S., on 8th August 1917 found in the Fatehpur district a nest which contained ten eggs of the whistling teal and two fresh eggs of the comb duck. This appears to be a case of the latter using the nest of a species which in its turn occupies the nests of other species.

The nest, when in a tree, is composed of sticks, either unlined or slightly lined with grass and feathers.

There must be a good reason for the great variety of the sites of the nests of the lesser whistling teal. What this reason is further observation will doubtless reveal. It may be that there are two races—a tree-nesting race and a ground-nesting one. More probably this teal always seeks to build in a tree, and adopts another site only when it is unable to secure a place in a tree. In this connection we must bear in mind, on the one hand, that the eggs and young in a hole in a tree are more immune from the attacks of predaceous creatures, including man, than those in a nest on or near the ground, so that the tree-nesting birds have the best chance of rearing young; on the other hand, the

whistling teal is incapable of excavating a hole in a tree or of constructing a nest among the branches. It must, therefore, in order to nidificate in a tree, find one containing either a disused nest, in a tolerable state of repair, of some large bird, or a cavity or cleft big enough to hold the sitting bird and its brood; moreover, the hole must be so situated that it is not liable to be flooded by heavy rain, and, I think, there must be near it a bough on which the parent duck can perch before entering the nest-hole.

If ground-nests occur only in default of sites in trees, observation should show that nests in wild rice, rushes, etc., are constructed only in places where there are no trees which afford the facilities set forth above. The eggs are creamy white, becoming darker as incubation proceeds.

CHAPTER XV

THE LARGE WHISTLING TEAL¹

SCIENTIFIC NAMES

LATEST NAME.—*Dendrocygna fulva*.

EARLIER NAMES. — *Dendrocygna fulva*. *Dendrocygna major*. *Anas fulva*.

ENGLISH NAMES

The Large Whistling Teal. The Greater Whistling Teal.

VERNACULAR NAMES

Bara Silāhi (Oudh). Wāduro (Bengal).

DESCRIPTION

Length, 20 in. ; tail, 2 in. ; wing, 9 in. ; bill, 2½ in.

The sexes are alike, and they do not change appearance after the summer moult. The female, of course, is smaller, as in the case of all ducks. As Finn points out, the larger whistling teal is even less duck-like in appearance than the smaller species. Its neck and legs are longer and it has the same rounded wings.

The under parts and the sides of the head are chestnut,

¹ Why some ducks should be called ducks and others teals I do not know. There is no distinction between a duck and a teal. Some authors call a species a duck while others designate it a teal. Generally speaking, the term "teal" is applied only to the smaller ducks, but this is not a universal rule; thus the little mandarin duck is, so far as I am aware, never called a teal.

almost reddish yellow. The back, shoulders, rump and tail are black, each feather of the back and shoulders having a chestnut border. There is a patch of white or cream feathers above the tail and one below. There are some dark bars on the sides of the neck. The bill is leaden grey and the legs and feet are greenish grey.

This bird may be distinguished from the lesser whistling teal by : (1) Its larger size. (2) The absence of a yellow ring round the eye. (3) The absence of a chestnut patch on the wing. (4) The brighter chestnut-red of the lower parts. (5) The patch of feathers above the tail being white or cream-coloured instead of chestnut. It is the general bright chestnut of the plumage that has caused this bird to be given the specific name *fulva*. In some parts of the world it is called the fulvous duck.

DISTRIBUTION

The large whistling teal has the most extraordinary distribution of any bird in the world. It furnishes an excellent example of what men of science term discontinuous distribution. It is found in India and Burma, Africa, south of the Sahara desert, Madagascar, Mexico, the southern parts of the United States, the Argentine, Peru and Venezuela.

Now, when a non-migratory species such as the whistling teal has a scattered distribution such as this, the species usually breaks up into local races, which eventually diverge so much in appearance as to become different species. That this has not happened in the case of the large whistling teal indicates that it is a very stable species—one not given to producing “sports,” or, in scientific language, mutations. It is possibly one of the most





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primitive ducks and probably once ranged over the greater part of the world. It seems to be a species which is gradually dying out.

In India the large whistling teal appears to be a very uncommon bird everywhere except Eastern Bengal and some localities in Burma. Stuart Baker, in his recent *Hand List of the Birds of India*, gives as its distribution, "practically all India, Burma and Siam in suitable places." Despite the qualifying words "in suitable places," this seems to me very misleading.

In his *Indian Ducks and their Allies* he writes (p. 116) : "The greater whistling teal has its headquarters within Indian limits in Eastern Bengal, where in parts it is exceedingly numerous; thence it extends into Assam, where, however, it is not common, and seems gradually to become less common towards the west and north of the Empire, and to extend a very short way to the south. . . . As regards Burma, Oates, in *Birds of British Burma*, writes: 'The larger whistling teal is a comparatively rare bird in Burma, except in the northern portions of Pegu.'"

The above account is correct so far as it goes, but it does not go very far. According to recently compiled lists of birds the larger whistling teal does not occur in any of the following districts:—Amballa and Lahore in the Punjab, Gorakhpur and Gonda in the United Provinces; Sehore, Arakan, Upper Assam, Khasia Hills, Baluchistan, Kohat and Kurram Valley, Bhamo, Rangoon, Chindwin, Andaman Islands and Sind. As regards Sind, Ticchurst states (*Ibis*, 1923, p. 457) that he did not meet it for certain in that province, and that he is not able to trace its appearance west of the Sind boundary (*Ibis*, 1922, p. 533).

Its name does not appear in a list of the kinds of duck shot in the vicinity of Poona. I did not observe the bird round about Bombay or Madras, or in the Fyzabad, Ghazipur or Pilibhit districts of the United Provinces.

It has been shot at Bhawalpur (see p. 55), and is recorded in the recent lists of the birds of the Jalpaiguri district of Bengal (compiled by Inglis, Travers, O'Donel and Shebbeare), and of the Myingyan district of Burma (compiled by K. C. Macdonald).

In Jalpaiguri the following account is given: "Rare Travers records one shot at Borvra, and a pair were also seen there which flew off in company with a large flock of the common whistling teal."

Macdonald writes that the large whistling teal in the Myingyan district "seems to be almost as common as its smaller relative during the cold weather, but I don't know whether it breeds in the district or not."

Other parts of Burma in which this duck has been observed are: the Engmah swamp, twenty-five miles south of Prome, Tonghoo and Kyeikpadein.

In the older lists of birds the large whistling teal is recorded in various places where it is no longer seen. This may be due either to the lesser species having been mistaken for the bigger one, or to the latter being less abundant now than formerly. Certain it is that what is written in Hume and Marshall's *Game Birds* is no longer true of this duck—viz. "In parts of Rohilkhand, Oudh, and Gorakhpur and Basti, it is common in the rains."

In view of the conflicting statements about the distribution of the large whistling teal, sportsmen and naturalists might with advantage keep a sharp look-out for it, and make a written record every time they see or

shoot the bird. A special point should be made of the date on which shot, as this duck undergoes local migration and appears to extend its range during the monsoon.

HABITS

The habits of the large whistling teal resemble those of the small species. Its whistle, although less often emitted, is louder. E. Gibson, writing of this duck in Buenos Ayres (*Ibis*, 1920, p. 17), likens its call to the "crackling of rain on a hot iron plate."

If appearances be a true guide, the large whistling teal is superior to its small relative. It is a better flier and walker, and swims and dives quite as well as its smaller cousin. Moreover, it is more wary and less easy to shoot. As regards constitution, the advantage is apparently with the large bird.

"It is," writes Mr F. Finn on p. 59 of *Indian Sporting Birds*, "far more hardy, bearing the English winter outdoors (when the small kind looks thoroughly miserable and soon dies off), and even breeding."

In view of all these advantages we should expect to find the larger species the more common; the reverse is the case.

What is the reason? This is a question to which I am not able to give a satisfactory answer.

As the large whistler is practically omnivorous, the reason cannot be difficulty in finding suitable food.

Both species breed at the same time—in the rainy season; the larger species in India nests in trees, so that its eggs and young are tolerably safe from the attacks of predaceous quadrupeds; on the other hand, its nesting area is necessarily restricted, for reasons given on p. 90. It is

to this extent at a disadvantage *vis-à-vis* its more successful relative.

Finn suggests that the reason of the comparative failure of the larger species in India may be the greater pugnacity of the lesser duck. He points out that the larger whistling teal is afraid of the smaller: he adds that there can be no doubt that the former "is greatly disadvantaged in India by the competition of its abundant and aggressive relative."

There is no denying that aggressiveness is a very valuable asset to an organism; when two species come into competition the more aggressive ousts the other, unless the latter has considerable compensating advantages. Were the smaller whistling teal to abound on every tank, its aggressiveness would fully account for the comparative rarity of the larger species. But this is not the case.

Thus the shooting records of the Bhawalpur State (see p. 55) show that the lesser species occurs there during the shooting season only in October and November.

The larger species was shot on only one occasion, and that was in December.

There are thousands of apparently suitable sheets of water in India on which neither of the whistling teal is ever seen. Moreover, both kinds of teal have been observed living amicably on the same piece of water. Competition with the small whistling teal doubtless operates as a check on the increase of the large one, but this alone is not sufficient to explain the comparative (and I think I may say the increasing) rarity of the large whistling teal. There must be some other cause at work. This may be connected with the food required for the young: even as the strength of a chain is that of the weakest link, so is the power of a species to hold its own in the

struggle for existence dependent on the endurance and hardihood of the young.

This, however, is pure conjecture. The riddle can be solved only by the study of the habits of this very interesting duck.

FOOD

Hume found that the food of these birds during the cold season consisted mainly of rice, but he stated that they are very miscellaneous feeders, and he found in their stomachs all kinds of aquatic seeds, bulbs, leaf-shoots and buds, also shells, insects, worms and larvæ, and on one occasion a tiny frog. The great bulk of their food consisted of rice, wild and cultivated.

Stuart Baker considers (*Indian Ducks*, p. 120) them to be "practically as omnivorous as is the domesticated duck . . . preferring, perhaps, a vegetarian to a meat diet."

According to Evans (*Cambridge Natural History, Birds*, p. 130), flocks of whistling teal cause great damage to corn or rice near the lagoons and other waters they frequent.

As this species is more often seen on land than is the smaller form, it is probable that it is more harmful to the rice and other crops, but it is of course far less numerous. Can it be that the diminution in its numbers is due to its being destroyed by cultivators on account of its grain-eating propensities?

NIDIFICATION

The nesting habits of this species are the same as those of the common whistling teal, even to the extent that it sometimes utilises the old nest of some other bird. In India the few records of its nidification are all of nests being in trees—often small ones growing in water. From

this it does not follow that the nest is invariably placed in a tree.

In South America and Africa the nest is usually built on or near the ground. Thus E. Gibson says (*Ibis*, 1920, p. 17) all the nests he came across in Buenos Ayres were in marsh or grass. C. C. Roberts states (*Ibis*, 1924, p. 358) that the nests he had reported to him in Nyasaland were all amongst reeds in fairly deep water.

The nests found in India have been platforms of twigs and grass, on which was sometimes spread some weeds or feathers by way of a lining. The number of eggs in the clutch varies from four to ten.

Barnes, many years ago, recorded a nest of this species at Hyderabad, Sind, and Hume mentions nests in Saugor. It would seem that this duck no longer breeds in either of those localities.

The only recent records of nests that I have come across are those of Stuart Baker, recorded in his *Indian Ducks and their Allies*. These nests were found in the Sunderbans, Rangpur and Nadia. Thus records of any nests seen should be reported to the Bombay Natural History Society.

CHAPTER XVI

THE COTTON TEAL

SCIENTIFIC NAMES

LATEST NAME.—*Nettopus coromandelianus*.

EARLIER NAMES.—*Nettapus coromandelianus*. *Nettapus coromandelicus*. *Anas coromandeliana*. *Anas girra*.

ENGLISH NAMES

The Cotton Teal. The Indian Goose Teal. The White-bodied Goose Teal.

VERNACULAR NAMES

Girri, Girria, Girja, Gur-gurra (U.P.). Ghangarial, Ghangani, Bullia-hans (Bengal). Gengat, Guira (Central India). Dandana (Orissa). Kalagat (Burma).

Most of the vernacular names are onomatopoetic.

DESCRIPTION

Length, 13 in. ; tail, 2½ in. ; wing, 6½ in. ; bill, 1 in.

Drake in Full Plumage.—Seen from a distance the drake appears to be a black-and-white bird. Closer inspection shows that the forehead and top of the head are not black, but dark brown. The remaining parts of the head, the neck, breast and the front part of the belly are white, the white neck being set off by a black collar. The rest

of the plumage is very dark brown glossed with green. There is a good deal of white in the dark wings.

Drake in Eclipse Plumage.—The drake loses the black collar, and the dark parts of the plumage become brown, but this still retains some green gloss. The drake wears this plumage throughout the winter and keeps it longer than almost any other species of duck.

Duck.—Has no necklace, and is brown where the drake is very dark brown glossed with green. There is much less white in her wing than in that of the drake. There is a brown patch in front of her ear.

The cotton teal is easily recognised by its small size. It is the smallest of the Indian ducks. The bill is short and rather like that of the goose in shape. The tail is long for the size of the bird.

DISTRIBUTION

The cotton teal is found in numbers in the eastern districts of the U.P. as far west as Lucknow, in Bengal, Assam and Burma. To the east of India this species extends to China, Borneo, Japan, the Philippines and the Celebes.

As regards the remaining parts of India, the cotton teal is very rare in the N.W.F.P., Punjab, Bhawalpur, Sind and Guzerat. It has, however, been recorded from Ludhiana and Gurdaspur in the Punjab, Sujawal in Sind, and Surat and Ahmedabad in Guzerat. Nevertheless it is sufficiently rare in these areas to make the shooting of the bird in any of them an event worthy of record. In Orissa and in parts of South India it is fairly abundant. According to Legge it is common in the tanks of the northern and eastern parts of Ceylon.



COTTON TEAL

HABITS

The cotton teal is a bird of distinctly confiding habits. I have seen a small flock of them in a tiny *jhil* in the Ghazipur district close to a road. Cotton teal have been observed disporting themselves in a pond at which the village *dhobis* were washing clothes. They often occur in roadside ditches in Bengal. They are numerous in the Sunderbans, on both broad and narrow sheets of water.

Cotton teal usually occur in small flocks, about a dozen being the number most often seen together.

The call of the cotton teal is peculiar, and is emitted while the bird is on the wing. It is a low, soft *quack-quack*, uttered very rapidly. Some people think it sounds like the words of command, "Fix bayonets," spoken very quickly and indistinctly. Several of the vernacular names are onomatopoeitic—e.g. *Lerriget-perriget*, *Gurgurra*, *Kalagat*.

The cotton teal seems never to dive, except when attacked by a bird of prey. I have not observed it, while feeding, plunge the fore part of the body into the water and tilt up the hind parts as many ducks do.

It is fast on the wing, and is an expert at "jinking" in the air. It often dwells among trees, in and out of which it flies almost as dexterously as does the kite. Although it nests and perches in trees, it is not a good walker.

FOOD

This duck appears to subsist mainly on vegetable matter. According to Hume (*Game Birds*, vol. iii., p. 104) its food consists of "rice grains, especially the seed of the wild rice, known as 'Pasiae' in Upper India, and of the

shoots of various kinds of aquatic plants, water-insects and their larvæ."

NIDIFICATION

In India the cotton teal nests in June, July, August and September. Surprisingly little is on record regarding the nesting of this species. The great bulk of the species appear to nest in Bengal. E. C. Stuart Baker, who was in Rungpur in 1885 for two or three months in the rains, writes (*Indian Ducks and their Allies*, p. 60): "I am sure that at that time a short walk of two or three miles in any direction along any road would have been productive of three or four nesting cotton teal, as well, perhaps, of one or two whistling teal." In Northern India the nest has been recorded as far west as Budaun, near Bareilly. A find of a nest farther west than this should be recorded, as should any nests found in South India. It also nests in Ceylon and Burma.

With two exceptions every observer who has seen the nest of the cotton teal has found it in a hole in a tree. The exceptions are F. H. Blewitt and J. R. Cripps, whose observations are recorded on pages 280 and 281 of vol. iii. of Hume's *Nests and Eggs of Indian Birds*. Cripps states that in Furreedpore (Eastern Bengal) the cotton teal nests not only in trees but in factory chimney holes.

Blewitt (who had eggs brought to him at Jhansi and did not see the nests himself) writes of the cotton teal: "It makes a semi-floating nest on the water, among the rushes or lotus-leaves, of weeds, grass, etc., all together, piled up several inches above the water-level."

This account may be correct. If so, the cotton teal would not be the only duck to nest sometimes on the

ground and sometimes in trees. Before being accepted the account requires confirmation. It may be that the fishermen who told Blewitt about the nests were romancing. They knew that jacanas, coots and other water-birds build floating nests, and one would naturally expect ducks to do the same : hence they might well reason : "If we tell the *sahib* that we have found ducks' eggs in a hole in a tree, he would not believe us and might refuse to pay us. This being so, we had better say the nests were in the water."

Mr A. Anderson gives the following account of the breeding operations of the cotton teal : "This species nests in the holes of trees and old ruins, and never, according to my experience, in old nests or on the ground.

"I once had an opportunity of watching a pair in the act of selecting their habitation. They invariably flew into the tree together, and while the female used to enter the hole to reconnoitre, as it were, the male sat on a bough watching for her exit. No sooner did she make her appearance than they both flew away together, giving utterance to a peculiar cackling sound, which has been pronounced to be like the words 'Fix bayonets.' Their visits used to be repeated at intervals of fifteen or twenty minutes. The drake never went into the hole ; and I am therefore inclined to believe that he does not lend his aid in the duties of incubation.

"The greatest number of eggs laid by the goslet of which I have a record is twelve. This nest was taken by Mr Spry at Budaun in August last. The hole occupied was at no great height, but it was three and a half feet deep, and only large enough to admit of ingress and egress ; the contents had to be removed by means of an

iron spoon, something like a soup-ladle with an extra long handle."

Other observers have come upon more than twelve eggs in a nest. The birds that nested in a tree in the Magistrate's compound at Rungpur, two hundred yards from water, mentioned by Stuart Baker, appear to hold the record. Their nest contained no fewer than twenty-two eggs, of which fifteen yielded young ones.

The nest-hole is not usually very high up in the tree. Most nests are from six to twelve feet above ground-level. Occasionally the nest-hole is quite low down. Oates found one containing ten eggs about thirty feet above the ground in a mango-tree.

In cases such as this, how do the young birds get from the lofty nest-hole to the water?

Probably the young birds usually just fall to the ground from the nest. The way in which a fluffy duckling or partridge nestling can fall on to a hard surface without coming to harm is surprising.

Some baby black partridge nestlings were brought to me at my office at Lahore, which has an uncarpeted marble floor. They were carried in an earthen *gharra*, which was deposited on the floor. Now a large globular *gharra* would seem to be a fairly safe cage for partridge chicks; nevertheless the youngsters were all out of the *gharra* running about the floor within three minutes of being brought into the room. I had them collected and replaced in the *gharra*, which was then hung on to the back of a chair. In a few minutes the youngsters were again running about the room, having dropped fully three feet from the top of the *gharra* as unconcernedly as a man steps off the pavement on to the road. A young duckling,

which is almost as light as the proverbial feather, with its little wings acting as a kind of parachute, can certainly drop from a height of fully twelve feet on to the comparatively soft earth without sustaining any injury.

In the case of mandarin ducks, which breed in holes high up in trees, there is evidence (see p. 225) which tends to show that the nestlings find their own way to the ground.

In cases where the nest is very high up, such as that recorded by Oates, it may be that the parent bird carries the nestlings to the water. E. C. Stuart Baker records (*Indian Ducks and their Allies*, p. 61) that "a very intelligent native" told him that one morning, just before daylight, he saw a cotton teal carrying its young, one after another, to the water *in its feet*.

Such evidence should be received with great caution. The alleged occurrence took place before daylight, so it would not be easy to see exactly what happened. It may be that the cotton teal did actually carry its nestlings to the water, but not between its feet.

More reliable evidence indicates that when a duck does carry its offspring, she holds them in her bill. Thus W. H. Hudson says (*Birds in London*, p. 40) of the mallard in Hyde Park: "When the young have been hatched in a tree the parent bird takes them up in her beak and drops them one by one to the ground; the fall does not appear to hurt them."

That reliable observer, M. Rogeron, gives, on page 148 of *Les Canards*, an account of a mallard carrying its young. This, translated into English, runs:

"I once possessed a wild-duck (mallard) that placed its nest more than twenty feet from the ground on the summit

of a tree overhanging a ditch. I had sometimes read and heard, but without altogether believing it, that under such conditions the duck carries down the young in her bill. It seemed to me more probable that the ducklings jumped down from the nest; they are so light, and their long, thick down should safeguard them from any chance of being harmed as the result of their fall. I had often seen newly hatched Carolina ducks clambering along the top of a wall, according to their habit at that age, and then letting themselves drop several yards without suffering the least harm. Nevertheless one must accept the evidence of one's own eyes: that mallard duck carried in her bill all her young, one after the other, not to the ditch below, but to my pond at a distance of some seven hundred yards, and the transportation of her nine young ones, despite interruptions in her journeyings to and fro, did not take long."

Thus there are authentic records of the mallard carrying her nestlings. This is the more remarkable because this duck does not as a rule nest high above the ground. There is no reason why the cotton teal should not also carry her young to the ground sometimes. Doubtless before long some naturalist or sportsman will be in a position to describe as an eye-witness the passage of cotton teal nestlings from a lofty nest-hole to the water.

CHAPTER XVII

THE ANDAMAN TEAL

SCIENTIFIC NAMES

LATEST NAME.—*Nettion albigulare*.

EARLIER NAMES.—*Nettium albigulare*. *Mareca gibberifrons*. *Mareca albigularis*. *Mareca punctata*.

DESCRIPTION

Length, 17 in. ; tail, $2\frac{3}{4}$ in. ; wing, $7\frac{1}{2}$ in. ; bill, $1\frac{3}{4}$ in.

Drake.—Plumage mainly dark mottled brown, the mottled appearance being due to the margins of all the feathers, except those of the top of the head, being paler than the centres. There is a ring of white feathers round the eye, which seems to become broader as the bird grows older ; the throat and the upper part of the fore neck are white. There is a narrow white and a broad black bar in the wing, the black band forming a speculum which has a bronze band running down the middle. Bill slaty green with a black nail. The feet are a darker slaty green.

Duck.—A little smaller than the drake. Plumage like that of the drake, except that it is paler brown, and the bright band on the black speculum is copper-colour rather than bronze.

DISTRIBUTION

The Andamans and the Cocos Islands.

HABITS

The Andaman teal is a most interesting duck, because it is an example of how new species arise. It is closely related to, and differs little in appearance from, the

Australian teal. There can be little doubt that these three species are all descended from common stock. As the Andaman birds are cut off from the Australian ones, they do not inter-breed, and, as almost invariably happens in such cases, slight differences appear in the plumage of the local forms, and, in course of time, these differences increase. There is evidence which points to the fact that the local peculiarity of the Andaman teal—the white round the eye—is increasing in extent as time goes on. It is quite likely that in years to come this bird will have the greater part of the head white, like the stiff-tail.

As in the case of most non-diving duck, the Andaman teal feeds by night. It seeks its food in paddy-fields or in salt or fresh water. During the day it retires to some secluded spot, either a tree or a shady river bank. It associates in flocks, and has been found in company with whistling teal. It flies well. It does not dive unless hard pressed by some foe.

NIDIFICATION

Our knowledge of the nesting of the Andaman teal is at present very fragmentary. The Andamans have a most interesting avifauna, and offer a fertile field to any ornithologist who is able to spend a hot-weather in the islands. The two accounts on record of the nesting of the Andaman teal do not agree.

Osmaston states that it breeds in holes in tall trees, often dead ones. He had ten nearly fresh eggs brought to him on 4th August from a hole near the summit of a Padouk tree.

Wimberly says that the nest is composed of grass, and is placed in a paddy-field. It may be that the Andaman teal nests both in trees and on the ground, or that Wimberly's nest was that of some other bird.

PART II.—*continued*
DUCKS IN PARTICULAR
B.—THE MIGRATORY DUCKS
1. DIVING DUCKS

B.—THE MIGRATORY DUCKS

THE greater number of the kinds of duck we see in India are merely winter visitors, and leave India in order to breed. Some go great distances into high latitudes, while others nest as near as Kashmir or Baluchistan.

As the resident ducks undergo local migration, there is no essential difference between the habits of the two classes of ducks, but the division is convenient as enabling the sportsman to know the ducks of which he may expect to find the nests in the plains of India.

The only migratory ducks of which he is likely to find the nests during his service in India are the mallard and white-eyed pochard in Kashmir, the marbled duck in Baluchistan and possibly in the western part of Sind, and the ruddy sheldrake in Ladak. It may be that a pair of migratory ducks occasionally remain in India to breed, but if such ever happens it is only on very rare occasions. Anyone who comes across the nest of any of the migratory ducks in any part of British India or Burma or Ceylon should make a point of recording the circumstances in detail.

1. THE DIVING DUCKS

All ducks can and do dive when necessity arises, hence it is not, strictly speaking, correct to describe any ducks as non-divers. The term, however, is convenient to distinguish the ducks which do not habitually dive for food

from those which do. These latter feed largely beneath the surface and so secure much of their food in deep water. Such are pochards, scoters, eiders, etc.

These diving ducks have the feet modified to assist them when diving. The three front toes of every kind of duck are joined together by a web of skin. In the case of the diving ducks the outer of the three front toes is as long as, or longer than, the middle one; in the non-diving ducks this is not the case. The fourth or hind toe rises higher up the leg, is much smaller than any of the front toes and points backwards. In the non-diving ducks this hind toe is very small; in the diving ducks it is comparatively large and is provided with a more or less well-developed lobe of skin which projects from the under surface.

Thus it is possible to tell a diving duck from a non-diver by glancing at the foot.

Most, if not all, of the diving ducks have a very "tubby" body, and the plumage is very thick, the feathers appearing to be shorter and set closer together than are those of the non-diving ducks.

Other features of the diving ducks are the rather short wings and tail and the absence of a brightly coloured wing-band or speculum. As Blanford has pointed out, the wings appear to be attached to the body farther backward than in most ducks, causing them to have a peculiar flight. They have the legs set rather far back in the body, hence they waddle on land with the body more erect than is usual with ducks. The clumsy gait of ducks on land is of course due to the very large feet, which occupy so much space that the birds have to exercise care lest they should tread upon their own toes!

The diving ducks are :

The Red-crested Pochard.

The Pochard.

The White-eyed Pochard.

The Eastern White-eyed Pochard.

The Tufted Pochard.

The Scaup.

The Golden-eye.

The White-headed Duck.

CHAPTER XVIII

THE RED-CRESTED POCHARD

[See Frontispiece Plate]

SCIENTIFIC NAMES

LATEST NAME.—*Netta rufina*.

EARLIER NAMES.—*Fuligula rufina*. *Branta rufina*.
Anas rufina.

VERNACULAR NAMES

Lāl-chonch, Lāl-sir (N.-W. India). Hero-hāns, Chobra-hāns (Bengal). Sing baj (Central India). Ratoha (Sind).

DESCRIPTION

Length, 21 in. ; tail, 3 in. ; wing, 10½ in. ; bill, 2¼ in.

Drake in Full Plumage.—Head and neck bright chestnut-red ; lower neck, breast and abdomen black, except the flanks, which are white. The black of the lower neck runs into the upper neck at the back, terminating in a point. The rump and the feathers above the tail are black, the rest of the back and the tail are brown. The wings are brown tinged with chestnut on the shoulders, with a white cross bar. Bill vermilion.

Drake in Eclipse Plumage.—The drake in eclipse plumage resembles the duck save for his swollen head and the entirely red bill. The full plumage is sometimes not assumed until February or March ; in consequence many of the drakes shot in India are not so brightly coloured as Mr Wright's model.

In both sexes the legs and feet are yellow or orange.

The drake, whether in full or eclipse plumage, can always be identified at a glance by its swollen-looking head, due to the thick feathering. The feathers stick out rather like the pile on a Turkey carpet. As I have said elsewhere, the drake's head always recalls to me a baby's worsted ball (dull red in full plumage and greyish brown in eclipse) into which a vermilion bill has been stuck. Rogeron says that he does not like the look of the red bill because it reminds him of the "strawberry" nose of a drunkard, although the poor bird drinks nothing but water!

Duck.—Greyish brown above, with pale cheeks. The wing bar is creamy white. The lower parts are white. The bill is black, tipped with red. This, like all the pochards, swims low in the water, and the tail is usually carried depressed and apparently it acts as a rudder. Thus when seen in the water these ducks have rather the appearance of large dabchicks.

DISTRIBUTION

This duck ranges over Central Europe and Asia and Northern Africa. It breeds in East Central Europe and West Central Asia. It sometimes visits England. It is only a winter migrant to India, coming in considerable numbers to the N.W.F. Province, Punjab, United Provinces and Upper Bengal. It is less common in Eastern Bengal and Assam, is rarely seen in Burma and not common south of the Deccan. I have observed it on the Godavari river, and there is, or used to be, in the Madras Museum a specimen labelled "Madras." This species is sufficiently rare south of the Godavari to make the seeing or shooting of one a matter worthy of record.

HABITS

The great majority of the red-crested pochards that visit India arrive between October and December, but some of these birds were seen once at Durbhanga as early as 22nd July. They leave in March and April. According to Blanford "the red-crested pochard often arrives in very large flocks, but when settled for the winter keeps usually in moderate-sized or very small parties." This is generally true, but I have seen very large flocks in the Ballia district, U.P., in January.

When red-crested pochards collect for the day in the middle of a big tank, there is a tendency for them to adopt a linear formation. Day after day I have noticed them in the Suraha Tal, Ballia district, forming a line several hundred yards long, the birds being from two to eight deep. As Finn well puts it, a large flock in a tank, owing to the bright-coloured heads of the drakes, looks like a bed of aquatic flowers.

In the daytime red-crested pochards keep by preference to large sheets of open water, whether lakes or rivers. They are strong swimmers and expert divers. They obtain much of their food by diving. In captivity, however, they dive much less than do other diving ducks, but Finn has noticed a drake dive and bring up to the surface dead vegetable matter which he has offered to the duck. When floating on the water, red-crested pochards have a habit of frequently bobbing, or rather jerking, the bill up and down.

They are not noisy birds, at any rate in captivity. The call of the drake is a kind of whistle, that of the duck resembles the note of the other pochards; it sounds like the syllable *kurr*.

Most sportsmen are agreed that the red-crested pochards are wary birds. They are certainly difficult to get at, because they keep to open water in the daytime, and no matter how stealthily you approach them in a boat, they continue to keep their distance from the boat.

Hume gives the following account of how he circumvented this species in the Etawah district: "Before dawn I was out in my punt, working softly round the margin to the western side, so as to have the fowl, when twilight broke, against the daylight sky. . . . Day dawned and I could soon see a dense mass of fowl . . . probably fully a quarter of a mile off. . . . Lying down I paddled towards them. Very soon a fresh north-west wind sprang up against me. Quite a sea rose. I was perpetually grounding, and they were swimming away steadily against the wind, so that it was bright sunlight before I got within two hundred yards, and then I could see they were all red-crests. I had now got into deeper water, and went as hard as I could without splashing; but they swam steadily away, and I must have gone fully half-a-mile before I had gained one hundred yards on them. Still they had not shown the slightest signs of suspicion (and I knew their ways well), but were swimming gaily on *en masse*, head to wind, as they often will on windy mornings. On I went. I had a long English swivel, carrying a pound of shot (No. 1, I had in); there were between two and three thousand of them, as closely packed as they could swim. I was certainly within seventy yards of the hindermost bird; I calculated to get within about forty yards of these and fire over their heads into the centre of the flock. They were close packed and backs to me, so there was little to gain, and possibly a great

deal to lose, by flushing them. I was within fifty yards when again I grounded; had I even then fired at once I must have made a very large bag, but I thought I knew that this was only the point of a mound, and I wasted some precious minutes struggling to get over it with the paddles. The nearest birds must have been seventy yards distant before, seeing I was hard and fast, I snapped an ammunition cap on a little pistol I always carried for the purpose, and raked them as they rose. The next instant there was a whole line of birds fluttering on the water, seven dead, and twenty-one winged. I recovered every one of them, but it was noon before I bagged the last; and if I had had a desperate hard six hours' work, I hardly remember six hours which I more thoroughly enjoyed."

In my opinion the red-crested pochard is superior as a table bird to most of its near relations; but I have eaten it only in the United Provinces. In places where it feeds largely on animal matter its flesh is said to be rank and fishy.

FOOD

Hume has observed red-crested pochards grazing and picking up small shells and insects at the water's edge. "Although mainly vegetarians," he writes (*Game Birds*, vol. iii., p. 258), "they indulge more in animal food than the pochard. I have found small frogs, fish-spawn, shells, both land and water insects, grubs, and on three or four occasions tiny fish, mixed with the vegetable matter, sand and pebbles that their stomachs contained. Usually at least two-thirds of their food is vegetable—leaves, stems, fleshy rhizomes, rootlets, etc., of arrow-grasses, *sagitarias*,

horn-worts and the like, but at times they feed largely on the animal substances above enumerated, and I examined one male that had entirely gorged itself on small fishes about one inch in length."

Stuart Baker, who examined some stomachs, records in the first edition of his *Indian Ducks and their Allies* (p. 212) that he found in their stomachs the roots of plants which do not grow except in fairly deep water, and that in large *jhils* they feed largely on a long trailing moss-like weed which grows several feet under water. On page 256 of the second edition the same author says: "I dissected one which had eaten, as far as I could see, nothing but the tiny red crabs which swarm in such countless myriads along the shores of rivers, swamps and backwaters in the Sunderbans, the waters of which are brackish."

NIDIFICATION

The regular breeding area of the red-crested pochard is South Europe, Algeria, and the western parts of Central Asia. The nest is composed of dead rushes and leaves; it is well lined with down from the bird's breast. It seems to be invariably placed in rushes or flags, either on the ground or on depressed rushes. When leaving the nest the duck covers the eggs with down, as do most, if not all, ducks that nest on the ground. From seven to ten eggs are laid.

CHAPTER XIX

THE POCHARD

SCIENTIFIC NAMES

LATEST NAME.—*Nyroca ferina ferina*.

EARLIER NAMES. — *Nyroca ferina*. *Fuligula ferina*.
Aythya ferina. *Anas ferina*.

ENGLISH NAMES

The Pochard. The Dun-bird. The Red-headed Pochard.

VERNACULAR NAMES

Lāl-sir, Burar-nar (N. - W. India). Lal-muriya (Bengal). Bhetia (C. I.). Cheun (Nepal). Thordingnam (Manipur).

DESCRIPTION

Length, 18½ in. ; tail, 2½ in. ; wing, 8½ in. ; bill, 2 in. ; weight about 28 oz.

Drake in Full Plumage.—Head and neck dark chestnut. Breast and a patch under the tail black. Tail dark brown. Rest of body white finely pencilled with wavy black lines, giving it a grey appearance. Bill grey in the middle and black at the ends. Legs and feet dark grey. The red head, black breast, grey body and brown tail render the drake in full plumage easy of identification—the sudden transition from one colour to another being very marked.

Drake in Eclipse Plumage.—The red of the head is duller and the breast is grey.

Duck.—Head, breast and upper back dull brown, which is tinged with red on the crown and becomes almost cream-colour on the sides of the head and throat. Tail brown, belly whitish. Rest of plumage pale grey with fine black wavy pencillings. Bill, legs and feet as in drake.

DISTRIBUTION

The pochard is found throughout Europe and Northern and Central Asia, including Japan. It breeds chiefly in the north-west part of its range, including Great Britain and Ireland. It is a winter visitor to Northern India. In winter it is very common in Mesopotamia and the extreme north-west of India; the farther south and east one goes, the rarer the pochard becomes. It is uncommon in Arakan and Burma. Although it has been observed in the vicinity of Bangalore, it is not often seen in Mysore.

Lieutenant C. H. T. Whitehead states that next to the teal the pochard is the commonest duck in winter in Kohat and the Karram Valley.

HABITS

Before describing the habits of the common pochard let me repeat what I have said in *The Common Birds of India* regarding the name "pochard." According to Dr Blanford, this word should be pronounced "pokard." He gives as a reason for his assertion the fact that the only pochard that visits England (*Nyroca ferina*) is known in some parts of the country as the poker.

I submit that the existence of the local English names



COUVON POCHARD



for the bird "Red-headed Poker" and "Blue Poker" is no reason for mispronouncing the word pochard. The verb to poach can be used both transitively and intransitively. As a transitive verb, it is a softened form of the verb "to poke" and has the same meaning—namely, to stab or pierce. The word "pochard" or "poachard" means "one who pokes or poaches." Probably this duck is called the poker on account of its diving habits. It is the only diving duck found on fresh water in England. It is, therefore, the duck that pokes in the water for its food.

Sufficient has, I think, been said to demonstrate that the "ch" in pochard should be soft, as every sportsman in India pronounces it.

Pochards are mainly fresh-water ducks, but they sometimes occur on the sea and salt water.

The flight is rapid, low and straight. The sound made by the rapidly plied wings can be distinctly heard when a flock is flying overhead. The call of the drake pochard is a kind of whistle and that of the duck a sound something like *kurr*. The calls of the various kinds of pochards resemble one another closely. The dun-bird feeds chiefly on vegetable matter, and for this reason is a better bird for the table than most of the diving ducks. In England it is considered a great delicacy.

Rennie, writing nearly a century ago of the pochard in England, says: "This species, though sometimes taken in the decoy pools in the usual manner, are by no means welcome visitors, for by their continued diving they disturb the rest of the fowls on the water, and prevent their being enticed into the tunnels; and we are assured that they are not to be decoyed with the other ducks.

Pochards, like other wild-fowl, were taken in greater abundance formerly, and in a very different manner. The method practised, as we have been informed from good authority, was something similar to that of taking woodcocks. Poles were erected at the avenues to the decoy, and after a great number of these birds had collected for some time on the pool (to which wild-fowl resort only by day, and go to the neighbouring fens to feed by night), a net was, at a given time, erected by pullies to these poles, beneath which a deep pit had previously been dug; and as these birds, like the woodcocks, go to feed just as it is dark, and are said always to rise against the wind, a whole flock was taken together in this manner; for when once they strike against the net, they never attempt to return, but flutter down the net till they are received into the pit, from whence they cannot rise, and thus, we are told, twenty dozen have been taken at one catch."

FOOD

Hume says (Hume and Marshall, *Game Birds*, vol. iii., p. 249) that though he once or twice saw pochards feeding on wild rice, they usually dive for the roots and submerged stems and foliage of all kinds of aquatic plants. In the stomachs he examined he found a few insects, grubs, worms, tiny frogs, and a good many shells; but seeds, flower-buds, shoots, leaves, stems and roots of water-plants, together with fine pebbles and sand, of which there is always a considerable quantity, always constituted the bulk of the contents. One specimen he examined had fed chiefly on marine plants, small crustaceans and molluscs. This duck feeds chiefly by night.

NIDIFICATION

Whyte says that at the nesting season the drake pochard, in order to attract the female, extends himself to his full length in the water and utters the softest of sounds. The pochard does not breed in India. Its breeding area includes the greater part of Europe (including Great Britain), Algeria, and the western part of Northern and Central Asia.

In England it nests in April and May. The nest is placed in a tussock of grass, usually in a marsh or near water, and is well concealed. It is the usual structure of sedge and dried grass, lined with down from the duck's body.

The normal clutch varies from seven to ten, but as many as fifteen have been recorded. As happens in the case of many kinds of duck, the female usually covers up the nest before leaving it to feed.

CHAPTER XX

THE WHITE-EYED POCHARD

SCIENTIFIC NAMES

LATEST NAME.—*Nyroca rufa rufa*.

EARLIER NAMES.—*Nyroca nyroca*. *Nyroca ferruginea*.
Nyroca africana. *Fuligula nyroca*. *Aythya nyroca*. *Anas*
leucophthalmus. *Anas nyroca*. *Anas africana*.

ENGLISH NAMES

The White-eyed Pochard. The White-eye. The White-eyed Duck.

VERNACULAR NAMES

Karchiya, Burar madar (N. W. India). Lāl-bigri, Bhuti-hāns (Bengal). Burnu (Sind). Katakabri (C. India). Malac (Nepal).

DESCRIPTION

Length, 16 in. ; tail, 2 in. ; wing, 7 $\frac{3}{4}$ in. ; bill, 2 in.

Drake.—Head, neck and breast dull dark chestnut. Rest of the upper plumage dark brown. Wings brown with a white bar, invisible except during flight. Tail brown. Belly white and sharply defined from the chestnut breast. Bill and feet bluish black. Eyes white. The drake has no undress plumage.

Duck.—A dull edition of the drake, with the eye grey or brown, *not* white, except perhaps in very old birds. The dull red-brown of the breast fades gradually into the

sullied white of the abdomen. In young birds the head and neck are yellowish brown.

This is one of the smallest of the ducks.

DISTRIBUTION

The white-eyed pochard is found in South, Central and Eastern Europe and South Western Asia. (In the eastern parts of Asia it is replaced by the Eastern White-eyed Pochard.) Stragglers sometimes reach the Canary Islands. Great numbers visit India in winter. This is the commonest duck in some parts of the United Provinces in winter, and occurs fairly abundantly in most parts of Northern India, is not uncommon in Burma, and a permanent resident in Kashmir, where it breeds. It is common in Mesopotamia. It does not ordinarily migrate into South India. The most southern places of which there are authentic records of its being shot are Khed in Ratnagiri and Nalgonda in the Nizam's dominions. Anyone seeing the bird or shooting it south of the Kistna should certainly publish a record of the fact.

HABITS

The white-eyed pochards arrive in the plains of India in the latter part of October and leave us in March. Although their usual habitat is fresh water, they occur sometimes on the sea. The white-eye is a diving duck, but, unlike most of its kind, it frequents water in which much vegetation grows; hence white-eyes do not as a rule assemble in very large flocks. They are less gregarious than many kinds of duck; hence, when disturbed, it often happens that all the white-eyes in the patch of water do not rise simultaneously, but in ones, twos and threes,

which, of course, is just what the sportsman likes. This habit perhaps accounts in part for the fact that white-eyes form so large a proportion of most bags of duck obtained in the plains of Northern India. As the white-eye feeds largely on animal matter, it is not a particularly good duck for the table, but I have eaten many white-eyes, and am of opinion that their flesh is not nearly so "inferior" as some people allege.

Wounded white-eyes are often difficult to retrieve in weedy *jhils* owing to their habit of diving to escape capture. I do not remember hearing this species call in captivity. Finn says "the note is a *kurr* in the female, a weak, faint quack in the drake."

On the wing the white-eye is fairly fast, but is comparatively easy to shoot, as it is not nearly so quick in rising from the water as most duck, and it usually flies low.

FOOD

According to Hume (*Game Birds*, vol. iii., p. 249) the white-eye is omnivorous. Although its food consists mainly of vegetable matter—leaves, stems, roots and seeds of grass, rush, sedge and all kinds of aquatic herbage—he noted amongst the contents of stomachs of various specimens delicate fresh-water shells, and shrimps, insects (including several species of Neuroptera and Lepidoptera) and their larvæ, worms, grubs and small fishes.

Stuart Baker considers (*Indian Ducks and their Allies*, p. 271) the food of this duck fully three-quarters animal. He noticed that the birds in the hill-streams had all (in addition to caddis-grub, dragon-fly larvæ, etc.) swallowed numbers of small fish.



WHITE-EYED POCHARD

Whatever may be said of some species of duck, the white-eye, like the other diving ducks, cannot be called injurious to the cultivator.

NIDIFICATION

The white-eye breeds in Europe as far west as Denmark and Spain and in Asia as far east and south as Kashmir. It also nests in North Africa.

The nest is usually composed of dry water-plants, flags, etc., with down and feathers as a lining. Normally it is placed in high rushes at a short distance from water. Occasionally, however, it is situated two or three feet above the ground, well concealed in a bush. In Kashmir the nest is sometimes more or less floating, being supported on a tangle of water-plants.

The number of eggs laid varies from six to fourteen, clutches of eight, nine or ten are most often met with.

CHAPTER XXI

THE EASTERN WHITE-EYED POCHARD

SCIENTIFIC NAMES

LATEST NAME.—*Nyroca rufa baeri*.

EARLIER NAMES.—*Nyroca baeri*. *Fuligula baeri*. *Anas baeri*. *Nyroca fuligula baeri*.

ENGLISH NAMES

The Eastern White-eyed Duck. Baer's Pochard. The Eastern White-eyed Pochard.

VERNACULAR NAME

Boro balbigan.

DESCRIPTION

Length, 19 in. ; tail, $2\frac{1}{2}$ in. ; wing, $8\frac{1}{4}$ in. ; bill, 2 in.

This is an eastern race of the common white-eyed pochard.

Drake.—Like the drake common white-eye, except that the head and neck are glossy dark green and the white of the belly runs higher up the flanks, so that it is visible when the bird is swimming on the water.

Duck.—The duck is a dull edition of the drake, but she has a patch of red between the bill and the eye.

DISTRIBUTION

Salvadori states that the range of this bird extends from Kamtschatka to Shanghai and Japan. It migrates in a southerly direction in the autumn and stragglers visit

Burma and Bengal. Finn records that two specimens of this race have been shot in England of recent years. It seems unlikely that these birds can have migrated from Eastern Siberia. They may have been "sports" of the common white-eye, which sometimes visits England, or more probably birds that had escaped from captivity.

There is not a great deal on record regarding the habits of this variety. A specimen of this bird—a female—was obtained in India in 1842, but it was regarded as a common white-eye. In 1896 Finn noticed that considerable numbers of Baer's pochard were exposed for sale in the Calcutta market; in the following year they seem to have been as numerous in Bengal as the white-eye. From this the conclusion was drawn that the Eastern white-eye habitually visited the north-east parts of India in winter and had been overlooked. It is, however, most improbable that dozens of these birds were shot and scores exposed for sale in the Calcutta market without anyone noticing the difference between the drake and that of the common white-eye. Moreover, in 1898 and subsequent years, fewer and fewer Eastern white-eyes were exhibited in the Calcutta market.

In most years a few specimens of Baer's white-eye have been obtained in Assam and Burma. Stuart Baker shot it in Assam, Higgins saw the variety on three occasions in six years in the Manipur State, and Campbell obtained it once there. Hopwood shot some Eastern white-eyes in Arakan.

It is thus pretty clear that, in ordinary years, the Eastern white-eye is only a straggler into India. Should it prove abundant in any future winter, it will be interesting to

note whether the abundance of the bird synchronises with any unusual climatic conditions.

HABITS

The habits of the Eastern white-eye resemble those of the common white-eye. Finn, however, notices that captive birds rise from the water with far greater ease than does the Western variety. It is said to be faster on the wing.

NESTING HABITS

All that I can find on record regarding the nesting habits of the Eastern white-eye is the testimony of Seebohm that it breeds in the valley of the Amur river.

CHAPTER XXII

THE TUFTED POCHARD

SCIENTIFIC NAMES

LATEST NAME.—*Nyroca fuligula*.

EARLIER NAMES.—*Fuligula fuligula*. *Fuligula cristata*.
Fulix cristata. *Anas cristata*. *Anas fuligula*.

ENGLISH NAMES

Tufted Pochard. Tufted Duck. Crested Pochard.
Crested Duck.

VERNACULAR NAMES

Dubaru, Ablāk, Rohwara (N. India). Turāndo
(Sind). Kabra (C. India). Mālak (Nepal). Nalla chilluwa
(S. India).

DESCRIPTION

Length, 17 in. ; tail, 2 in. ; wing, 8 in. ; bill, $1\frac{3}{4}$ in.

Drake in Full Plumage.—The drake in full plumage is coloured like a magpie, and, as his recumbent crest is not nearly so conspicuous as his black-and-white plumage, the magpie pochard would describe him better than the name by which he is known. I say this merely that it may serve as an aid to identification, not with the object of giving him a new name. This unfortunate species has already four English and at least six scientific ones. All the plumage of the drake is black, except the abdomen, flanks, and a band on the wing, which are white.

The eye is golden-yellow ; for this reason a sportsman who shoots this comparatively common bird often thinks that he has bagged a specimen of the rare golden-eye !

The tufted pochard is a very squat-figured "tubby" duck, and looks very small and compact when it swims on the water—the white flanks then show up very plainly against the black of the rest of the plumage. Bill, legs and feet are dark slate-colour, almost black.

Drake in Eclipse Plumage.—In July the drake moults into brown plumage, but the back and lower neck are always more or less speckled with greyish white ; by this feature the drake may be distinguished from the duck at all seasons. The drake does not remain long in this plumage, and the greater number that are shot in India look like the specimen depicted by Mr Wright.

Duck.—The duck is brown where the drake is black, and the upper parts of her flanks are brown, so that, when on the water, she does not show nearly so much white as the drake. On the wing this species looks like a black or (in the case of the female) a brown duck, across the belly of which a white label has been pasted.

DISTRIBUTION

A winter visitor to Northern and Central India and Upper Burma. Rare in Mesopotamia. Resident in England, where it breeds. It also nests in most parts of Europe and in Central and Northern Asia. It is reported to breed in the mountains of Abyssinia.

The distribution of this duck in India has not yet been properly worked out. In order to do this, shooting records from all parts of the country are necessary. The few records we have seem to show that in any particular



TUFTED POCHARD

locality its abundance varies from year to year, varies perhaps more than does that of any other duck. Most bags made in Northern India contain a small percentage of tufted ducks. It is fairly common in the United Provinces and Bengal. Munn, in his list of the birds of Calcutta (*Ibis*, 1894), states that it is not common round about Calcutta. According to Stuart Baker it is the most abundant of all the pochards in Lakhimpur (Assam), and recent shooting records show it to be the commonest duck in Northern Burma. Curiously enough, the older writers say that the bird is rare in Burma. Salvadori says it does not occur there, while Hume states that he has no information of its occurrence in British Burma.

The distribution of this duck in South India and South Burma has still to be worked out. Hume wrote (*Game Birds*, vol. iii.): "It occurs in places in very large flocks in Chota Nagpore, the Northern Circars, and the Nizam's dominions, straggling by the way at times into Southern Konkan. It has been shot at Bellary, and certainly, though rare, visits Mysore; but south of this I have heard of it nowhere in the Peninsula except in the north of the Coimbatore district, nor has it yet been recorded from Ceylon."

So far as I am aware, what Hume wrote still holds good. This duck visits Kashmir in some seasons, but apparently not in others.

HABITS

Large numbers of the tufted duck visit Northern India and Burma every winter, and next to the white-eye it is the most abundant of the pochards. Some writers assert that this species is more abundant than it appears

to be, because it is exceptionally wary and fast on the wing. I have not noticed these alleged characteristics; but this duck is certainly a wonderful diver, and, as many individuals evade the sportsman because they dive and swim under water to escape him instead of flying, the numbers "bagged" probably do not indicate accurately the relative abundance of the tufted duck.

The tufted duck occurs on the coast, but prefers fresh to salt water. Its favourite haunt is a *jhil* in which there is much vegetation.

As it feeds to a considerable extent on animal matter it is not one of the best ducks for the table. It obtains the bulk of its food by diving. It is not often seen on land. Its gait is clumsy. Its call is usually described as "grating." When uttered during flight it sounds something like *ker-ker-kurra*, and on alighting, like *kurra-kurra*.

FOOD

Hume considers (*Game Birds*, vol. iii., p. 281) that the food of tufted ducks is more animal than vegetable. "They constantly," he writes, "devour small fish, and one finds every kind of water-insect, worms, grubs, shells, small lizards, frogs, spawn, etc., in their stomachs. Still, like the rest, they eat leaves, stems and roots of water-plants freely, and I have several notes of birds which had dined (or breakfasted) entirely off some shining onion-like bulb."

NIDIFICATION

The tufted pochard nests commonly in Lapland, Germany, Russia, Hungary, Turkey, Central Asia, and possibly Abyssinia.

The nest is usually in a tussock of grass or in rushes, near water. Sometimes it is quite exposed. The duck usually covers up the eggs when she leaves the nest.

Pearson, in his *Three Summers among the Birds of Russian Lapland*, records finding two nests of this duck. One find was on 15th June. The nest in question was "on very wet ground close to a small stream, and under the eggs was last year's nest with the hatched-out egg shells." From this it would appear that this species, sometimes at any rate, returns to the same place in consecutive years to breed. The nest in question contained nine fresh eggs. The second find was on 19th June, when Pearson noticed a tufted pochard drake feeding in the shallow water at the head of a small lake; his mate was sitting on nine eggs on a tiny islet at the other end of the lake. The nest was exposed.

The nest is usually composed of grass or reeds, and lined with black down and white feathers from the duck's breast.

CHAPTER XXIII

THE SCAUP

SCIENTIFIC NAMES

LATEST NAME.—*Nyroca marila marila*.

EARLIER NAMES.—*Nyroca marila*. *Fuligula marila*.
Anas marila.

DESCRIPTION

Length, 18 in. ; tail, 2 in. ; wing, 9 in. ; bill, 2 in. ; weight, 34 oz.

Drake in Full Plumage.—Head, neck, breast and rump black, the head and neck being glossed with green. The bright yellow eye is very conspicuous, surrounded, as it is, by the dark plumage, and gives the bird a rather savage look. The back and shoulders are grey, with a number of fine zigzag black pencillings. Wings and tail dark brown. A white wing-band. Abdomen and flanks white. The bill, which is broader at the tip than at the base, and gives the bird a rather coarse appearance, is slaty blue with a black nail. Legs dark grey, the webs of the toes being black. The head is large and has the appearance of being swollen. This duck has generally a coarse look.

Drake in Eclipse Plumage.—Resembles the duck, but lacks the white across the top of the bill, and the shoulders and breast are pale brown with large dark blotches.

Duck.—Head, neck and breast brown save for a white band across the forehead just above the base of the bill. The brown breast fades into the white belly. Back and

shoulders finely pencilled with wavy brown lines on a white or cream background. Wings brown with a white band. Tail brown.

DISTRIBUTION

The scaup extends over the whole of the Northern Hemisphere in both the Old and the New World. It breeds all over the northern part of its range, which ends at about 40° N. lat. In winter the scaup visits England and Central Europe, China, Japan and the coasts of North America.

Stragglers reach India in winter; but, according to existing records, it is a distinctly rare bird in India. It has been shot in Kashmir, Kulu, Nepal, N.W.F.P., Punjab, Sind, Oudh, Bengal, Assam and Bombay.

Every sportsman who shoots a scaup in India should make a point of sending a report to the Bombay Natural History Society.

There can be little doubt that some, at any rate, of the species of duck which are believed to be very rare in India are more abundant than is commonly supposed. Many of such duck are shot or snared and eaten without the fact being recorded, simply because it is not known that the birds in question belong to a species supposed to be uncommon in India. When Mr Wright began to paint the Indian ducks in the cold weather of 1922-1923, he asked his friends to send him any rare kinds they shot. As a result of this request he received specimens of the following species of duck, all shot near Lahore:—Scaup (shot by Mr Montgomery); stiff-tail (two specimens, shot by the shooting party with Sir Edward Maclagan, Governor of the Punjab); marbled teal (shot by Major

Broome, I.M.S.). But for Mr Wright's request the shooting of the scaup and the marbled teal would not have been recorded.

The scaup is almost certainly more abundant in India than the records indicate. For example, the Rev. J. Gompertz, who did not publish the fact, shot eleven scaups in Oudh between 1897 and 1904. The scaup has a preference for salt water and so is most likely to be seen by the sea.

HABITS

The scaup obtains much of its food by diving for it. Its flight is swift and is said to be "noisy." It is supposed to take its name from feeding on broken shells called scaup. As I have had no opportunity of observing this bird I quote the following from Montagu: "The male and female make the same grunting noise, and both have the same singular toss of the head, with an opening of the bill, while sporting in water in spring. This peculiar gesture would be sufficient to identify the species, were all other distinctions wanting. During the summer months, when the larvæ of various insects are to be found in the mud at the bottom of the pond, these birds are continually diving; but they are perfectly contented with barley, and become so tame as to come to the edge of the water for a bit of bread. Of all the aquatic birds we have had that have been taken alive from their natural wild habits, none has appeared so familiar as the scaup: after feeding a few days with bread soaked in water, they will take to eating barley freely. This species is never taken in a decoy, and rarely observed upon fresh water, except where large rivers disembogue into the sea, or in lakes close to



SCAUP DUCK

the sea. The manner in which our specimens were taken was quite accidental. On some parts of our flat coast, where the tide recedes for a considerable distance, the fishermen place their nets in a semicircular form at low water, so that on the return of the water at the next ebb all the fishes within the vortex of the net are cut off, and with them sometimes a scaup or a scoter. The birds, finding some resistance, attempt to avoid the obstacle by diving, and by such continued efforts are at last incapable of flying, and easily taken alive, unless they get entangled in the net under water, and are drowned, which sometimes happens."

Here we have an excellent example of instinct at fault when confronted by unusual circumstances. The scaup is an habitual diver. It always tries to escape from danger by diving, and so is impelled by instinct to dive when by so doing it cannot escape.

Needless to state, the scaup is not a good bird for the table.

FOOD

The scaup is mainly an animal feeder, and as we have noticed, its name is supposed to be derived from the fact that it eats mussel (scaup) shells. The derivation may, however, be from the harsh call of the bird. Seebohm writes: "If you imagine a man with an exceptionally harsh, hoarse voice screaming out the word '*scaup*' at the top of his voice, some idea of the note of this duck may be formed."

Although by nature mainly an animal feeder, the scaup, as we have seen, in captivity, readily takes to a vegetable diet.

NIDIFICATION

The scaup breeds in the northerly parts of Europe, Asia and America. There are reports of its breeding in Great Britain, and a solitary record of its nesting in Germany.

In Europe the usual breeding grounds of the scaup are in Iceland, Lapland and Finland.

The nest is placed on the ground under a bush, or well concealed in high grass, occasionally in a hole or under a stone. Sometimes more than one female deposits eggs in the same nest. Krüper found twenty-two eggs in a nest in Iceland. The nest is of the usual type. Most eggs are laid in June and July. The duck sits very close.

CHAPTER XXIV

THE GOLDEN-EYE

SCIENTIFIC NAMES

LATEST NAME.—*Glaucionetta clangula clangula*.

EARLIER NAMES.—*Clangula glaucion*. *Clangula clangula*. *Glaucionetta clangula*. *Bucephalus clangula clangula*. *Anas clangula*. *Anas glaucion*.

ENGLISH NAMES

Golden-eye. Garrot.

DESCRIPTION

Length, 18 in. ; tail, $3\frac{1}{2}$ in. ; wing, 9 in. ; bill, $1\frac{3}{4}$ in. ; weight, 36 oz.

Drake in Full Plumage.—Head, which has a short bushy crest, is dark glossy green. A large round white patch on each cheek, touching the bill. Rest of upper plumage black with a large white patch on the wing and some white on the shoulder. Chin and throat black, remainder of lower parts white.

Drake in Eclipse Plumage.—Resembles duck, but he retains the white wing patch.

Duck.—The female lacks the white patches on the face and the wings, but has an imperfect white collar and some white on the shoulders. Her upper breast is grey and the abdomen white. The remainder of her plumage is brown, almost black, but dashed with grey on the upper back and shoulders.

The eye is yellow in both sexes, hence the name golden-eye. (*N.B.*—The tufted duck has also a golden eye, hence is often mistaken for this species by sportsmen.)

DISTRIBUTION

The golden-eye breeds in the far north of America, Europe and Asia, migrating southwards in winter, when it occurs in South Europe, North Africa, Persia, Mesopotamia, China and the U.S.A. A few visit India every winter.

The golden-eye has been recorded in India in Baluchistan, the valley of the Indus, the Jhelum district in the Punjab, the Saharanpur, Lucknow and Gorakhpur districts in the United Provinces, and in Assam.

According to Delmé Radcliffe the golden-eye visits the Khan Lake in Baluchistan every winter.

From the observations of Messrs Morton, Eden and E. C. Stuart Baker the bird would appear to be fairly common in parts of Assam.

Like the swans and some of the geese, it is most likely to be seen in India in exceptionally cold winters, such as that of 1910-1911.

The golden-eye is probably far more common in India than the records of specimens shot indicate. Being a wild bird it is less easy to shoot than some ducks. Doubtless it is sometimes shot by sportsmen who have failed to examine it and so have not recorded the occurrences, or who, knowing it to be a golden-eye, have not taken the trouble to make a report.

Everyone shooting a golden-eye in India should send in a record to the Bombay Natural History Society.

As, however, the tufted duck is so often mistaken by

sportsmen for the golden-eye, care should be exercised to see that the specimen recorded as a golden-eye is really such. Nothing is easier than to distinguish between the two species. Quite apart from the difference of colouring in the plumage, a glance at the bill will suffice to distinguish the two birds—the bill of the golden-eye is deeper at the base and the nostril is nearer the tip of the bill, that of the tufted duck being close to the base of the bill. The head of the bird shot might with advantage be dispatched with the record of shooting it.

HABITS

The golden-eye, although essentially a sea-bird, is often found on inland lakes and rivers. It is a very expert diver and subsists largely on fish, which it catches with all the dexterity of a merganser; indeed the golden-eye in many ways resembles the merganser, and perhaps Mr Stuart Baker does not go too far when he describes it as a sort of link between the mergansers and the more typical ducks.

The golden-eye is not a good bird for the table, but this does not apply to its eggs. In northern countries the inhabitants put up boxes for the bird to nest in; as soon as the eggs are laid they are taken and eaten.

The golden-eye makes much splashing when it rises from the water, but when once on the wing moves well, despite its small wings.

“Golden-eyes,” writes Montagu, “are known by the vigorous whistling of their wings as they pass through the air.” It is from this sound that the bird derives its Latin name, *clangula*. As regards the voice of the golden-eye, this is distinctly disappointing. In view of its wonderfully

complicated windpipe, we should expect the golden-eye to emit something better than "a mere grunting croak."

FOOD

The golden-eye feeds largely on animal matter. According to Yarrel, fish form the chief items of the menu of the bird. Macgillivray, however, only once found the remains of fish in the stomach. He considered that the food of this duck consists principally of the larvæ of aquatic insects, for which it dives in clear water; also small fresh-water molluscs. He never found any vegetable matter in the stomach.

NIDIFICATION

The golden-eye breeds in the northern parts of America, Europe and Asia.

A. C. Chapman gives (*Ibis*, 1885, p. 171) the following description of a nest found by him in Lapland on 16th June: "When we arrived at the place I wondered where the nest could possibly be, so thin and small were the trees: however in an old stump about three feet high, with a hole in the side of it large enough for a duck's body to enter, and about eighteen inches down, was a mass of dusky white down with the six bluish green eggs. . . . The stump was at the top of a very steep bank, perhaps one hundred and fifty feet from the river, but certainly not more than forty perpendicularly above the water."

Large numbers of golden-eyes nest in Finland, Norway and Sweden, where, as has been noticed, the peasants hang up nest-boxes for the golden-eye to nest in. "These boxes," writes Dresser, "are frequently hung up close to the peasants' huts, and even then the golden-eye will nest

in them. The bottom of a hollow tree or nest-box is neatly lined with down, and on this soft bed the eggs, which vary in number from ten or twelve to seventeen or even nineteen, are deposited. When hatched, the young birds are carried by the female in her beak down to the ground or to the water, one after another being taken down until the whole brood is taken in safety from the elevated breeding place, and I have been assured by the peasants that this always takes place in the dead of the night."

One naturally asks, if this event always takes place in the dead of the night, how have the story-tellers contrived to see what has happened?

Seeböhm writes that the golden-eye "has been seen to convey its young one by one down to the water pressed between its bill and its breast."

For reasons given above, it is in my opinion not safe to credit any of these stories of peasants regarding duck carrying their young in any particular way. There is, however (see p. 105), reliable evidence that the mallard does sometimes carry her young in her beak. Whether or not any other method is ever resorted to, it is not possible yet to say.

Pearson, in his *Three Summers among the Birds of Russian Lapland*, records some interesting first-hand observations on the nesting habits of the golden-eye. On 29th May he found eleven fresh eggs in a hole in a stump of a tree. There was a quantity of down in the nest. "The stump," he writes, "stood on the edge of a steep bank overlooking the Kitsa, and had evidently been inhabited by the birds for many years, as two triangular holes had been cut in the side facing the river, one two feet below the other. When the bottom of the cavity sinks, through decay of

the wood, so that the men (who make a business of collecting the eggs) cannot reach the eggs, they cut a new hole low down the trunk."

This nesting of birds in successive years in holes from which the eggs are taken by man points to a great dearth of suitable nesting sites in the locality, and explains why nesting-boxes near peasants' huts are used in this particular case. Pearson forestalled the professional egg-lifters and had the golden-eye's eggs "battered" and then breakfasted off them.

On 1st June Pearson came upon another golden-eye's nest containing four eggs. The site had been used so often that three successive holes had been made to reach the eggs. On 7th June Pearson found five eggs of the golden-eye in a hole in a pine-tree in which a pair of hawk-owls had a young one. While his man climbed the tree to obtain the eggs the hawk-owls mobbed him.

That the golden-eye should occupy the same tree as hawk-owls affords further evidence of the difficulty experienced by golden-eyes in obtaining nesting-sites.

On 29th June, as Pearson walked up a path leading to Lake Kolozero, a golden-eye flew over and appeared to have an interest in one of the trees near by. A short search revealed a tree with two small holes in its side and its stem covered with down.

"The golden-eye," writes Pearson, "must have gone in and out at the top of the tree, as the holes were too small to admit of my hand, but she had pushed the down out through the holes before taking the young ones to the water—a fact which Musters had often observed before."

As the golden-eyes presumably do not push the down out of the nest for amusement, it would appear that this was done to make an exit for the young golden-eyes, they being pushed through the hole by the mother, or falling through it, on to the ground below.

It might well be impossible for the mother to carry the young in her bill from the nest to the top of the hollow.

CHAPTER XXV

THE WHITE-HEADED DUCK

SCIENTIFIC NAMES

LATEST NAME.—*Erismatura leucocephala*.

EARLIER NAME.—*Anas leucocephalus*.

ENGLISH NAMES

White-headed Duck. Stiff-tail. White-faced Duck.

DESCRIPTION

Length, 18 in. ; tail, 4 in. ; wing, 6½ in. ; bill, 1¾ in.

Drake.—Head and upper neck white, except the crown, which is black. A black ring round the neck passing into the reddish brown of the lower neck. Breast dark brownish red with brown bars. Tail blackish brown. Wings brown-grey with thin wavy buff pencillings. Bill, blue-grey. Legs and feet almost black.

Duck.—Like drake, but much less white on the head. This is black except for the chin, lower part of cheeks and a stripe below the eye from the bill to the neck, which are white.

This species may be recognised at a glance by its clumsy bill, very deep and thick at the base, and the stiff, pointed tail feathers ; these look as though they belonged to a woodpecker.

DISTRIBUTION

The stiff-tail lives in the countries that surround the Mediterranean, and in Asia Minor and Central Asia.

Stragglers visit India in winter. It seems to be becoming commoner in India, and we may find it breeding in North-west India.

When Hume wrote fifty years ago he knew of only one record of the appearance of this duck in India. Since then it has been shot on many occasions. It has been recorded from the N.W.F.P., the Punjab, the United Provinces, Sind, Baluchistan and Kashmir.

Tenison states that it is not uncommon in the vicinity of Nowshera. Bolster records that it is fairly abundant in the Bhawalpur State, and this appears to be the case in Baluchistan.

It can now hardly be called a rare duck in the western part of the Punjab. On 27th November 1922 three specimens were shot in the Mianwali district by a shooting party consisting of Sir Edward Maclagan, the Nawab of Bhawalpur, Major Wigram, Colonel Ferrar, Mr Montgomery, Major Bolt and Captain Emmott.

HABITS

Mr R. Bolster, I.C.S., has kindly sent me the following note on the habits of the stiff-tail duck :—

“Shooting at Bahawalnagar, in the north of the Bhawalpur State, a little before the light had gone, I noticed a small flock of about six birds whose appearance on the water rather puzzled me. They were in a deepish canal cul, only about thirty yards wide, and were in the company of a grebe of middle size, which species I did not discover. This, and the fact that they were swimming along ahead of me within shot hardly faster than I was walking, showing very

¹ The grebe was probably the eared grebe (*Podiceps nigricollis*).

little of their heads and bodies above the water, made me think at first that they were dabchicks (*Podiceps albipennis*). A closer look made me suspect that they were something in the duck line, so I got behind some cover and, after moving at an increased pace, came out suddenly level with them. I then saw the heavy, white-patched face and the rounded back, and, guessing they might be white-faced duck (which, by the way, are not by any means rarities in this State), fired, and succeeded in securing two.

“The point which struck me was that the birds seemed to be *partially submerging themselves deliberately in order to escape observation*. Naumann, quoted by Stuart Baker at page 259 of his *Indian Ducks and their Allies*, notes this ‘submarining’ habit, but the nearest observation to my own experience is from Chapman and Buck, in their *Wild Spain*, as quoted by the same author on the same page. They note what struck me also—viz. that, *when swimming deep, these duck carry their tails out of sight under water*. Last year I saw a white-faced duck close to the carefully screened butt from which I was shooting, and, thinking it to be a cripple of my own, shot it on the water; it was carrying itself well above the water then, though I was too far off to see with the naked eye whether it was adopting the high wren-like carriage of its peculiar stiff tail of which most who have seen it speak. On another occasion, many years ago, in the Mianwali district in the Punjab, I saw the bird swimming well out of the water, and my recollection was that the tail was then carried high.

“In all other respects the flock of which I now write behaved very like grebes when fired at, a trait that Finn and others have noticed. They were very ‘confidential’ both before and after the shot, and their short, rounded



WHITE HEADED DUCK

wings carried them only a very short distance from the place at which I had fired at them."

I have never seen a stiff-tail swimming, so am not able to say how it carries the tail. There is, however, evidence of eye-witnesses that this is normally carried upright. Otto states that, when swimming, this duck looks like "the double-peaked Hungarian saddle." Danford and Harvie-Brown write of this duck in Transylvania (*Ibis*, 1875, p. 427): "They swam very fast, keeping their stiff woodpeckér-like tails erect at right angles with the body."

On the other hand, as observed by Chapman, Buck and Bolster, the tail is often used as a rudder or propeller under water. It is most unlikely that the stiff tail feathers serve no function.

The stiff-tail is a wonderful diver. Canon Tristram pointed out many years ago that in mode of flight and habits it much more resembles a grebe than a duck. Like the grebes, it prefers diving to flying in order to escape its foes. It is a fresh-water duck.

FOOD

I can find nothing authentic on record regarding the food of this duck in India. Hume wrote many years ago: "They are said to feed on water-insects, small fishes and shells, as well as vegetable matter; but I suspect that this is rather conjectural." Since then nothing further appears to have been recorded regarding the food of this bird. Sportsmen who shoot them may, by examining the contents of the stomachs, be able to add to our knowledge of the habits of the stiff-tailed duck.

NIDIFICATION

The stiff-tail nests inland on the edges of lakes and in marshes, the nest being well concealed. It is composed of rushes, reeds, etc., and, as usual, lined with down.

About eight eggs are laid. These are white in colour.

PART II.—*continued*
DUCKS IN PARTICULAR
B.—THE MIGRATORY DUCKS
2. NON-DIVING DUCKS

B.—THE MIGRATORY DUCKS

2. THE NON-DIVING DUCKS

The non-diving ducks are :

The Mallard.

The Pintail.

The Gadwall.

The Widgeon.

The Shoveller.

The Sheldrake.

The Ruddy Sheldrake.

The Common Teal.

The Garganey Teal.

The Bronze-capped Teal.

The Clucking Teal.

The Marbled Duck.

The Eastern Grey Duck.

The Mandarin Duck.

CHAPTER XXVI

THE MALLARD

SCIENTIFIC NAMES

LATEST NAME.—*Anas platyrhynchos platyrhynchos*.

EARLIER NAMES.—*Anas boschas*. *Anas boschas*. *Anas platyrhynchos*.

ENGLISH NAMES

Mallard. Wild-Duck.

VERNACULAR NAMES

Nil-sir. Nil-rugi (N. India). Lilg (male), Lilgahi (female) (Nepal). Hari garden ghagral (Central India).

DESCRIPTION

Length, 24 in. ; tail, $3\frac{1}{2}$ in. ; wing, 11 in. ; bill, $2\frac{1}{2}$ in. ; weight, $2\frac{1}{2}$ lb.

(In this, as in most ducks, the females are rather smaller than the males.)

Drake in Full Plumage.—Head beautiful bright glossy green ; a white ring round the neck, not quite closed at the nape. Breast chestnut. Wing-band or speculum of metallic blue edged with white. Upper back and shoulders finely pencilled white and brown. Lower back and rump black. The four middle tail feathers are glossy greenish black and curl up in a curious manner, so that they appear to be but two. The rest of the tail feathers are white, except near the shafts, where they are grey-brown. Lower parts white, except for a velvety black patch under the tail. Bill greenish black. Legs reddish orange. Eye red.

Drake in Eclipse Plumage.—Like the female, but much darker in colouring.

Duck.—The plumage is the mottled brown so characteristic of many female ducks. She has the metallic blue wing-bar of the drake. By this and her red legs and red bill with a black patch on it may she be differentiated from other species of mottled brown plumage. She lacks the curled tail feathers.

The details of the markings of this duck, as with most other species, vary considerably with the individual. It is therefore by salient features rather than details of plumage that they must be identified.

DISTRIBUTION

The mallard has a very large range. It occurs in Europe, North Africa, North America, North and Central Asia, including Japan. In summer it migrates to Abyssinia, India, South China, Mexico and Panama.

The mallard visits India in large numbers, but keeps mainly to the north-western part of the country. It is the most abundant duck in the Punjab and the N.W.F.P. It is very common in the western districts of the United Provinces and becomes less abundant the farther east one goes. In Burma it is very rare. South of the United Provinces it is not often seen. It is a sufficiently uncommon visitor to Rajputana, Bombay, Central Provinces, South India, Burma and Ceylon to render the shooting of it worthy of record.

HABITS

This is the familiar wild-duck of Englishmen, and is the one most often seen in the parks of London. It is the



MALLARD

ancestor of our domestic duck. In India it usually occurs in small flocks. It does not seem particular as to the kind of water it frequents ; anything from a ditch or marsh to a large river, and even the sea, seems to suit it as a feeding ground.

The mallard is swift on the wing, and is said to be able to attain a speed of one hundred miles an hour. It swims and dives well, although it does not habitually dive for its food ; in shallow water it is fond of obtaining this by tilting its body so that its tail points toward the sky, being maintained in this position by rapid paddling of the feet. It walks better than many species of duck, but its gait is necessarily a waddle on account of the large size of its webbed feet.

The usual call of the female is the loud quack with which everyone is familiar owing to the fact that the bird is commonly domesticated ; the note of the drake is in comparison feeble. Finn well describes it as a hoarse, faint quack, sounding as if the bird had a very bad cold.

FOOD ·

The food of the mallard is chiefly vegetable, but worms, molluscs, insects and fish form a not inconsiderable part thereof.

No one has recorded anything about the food of this duck in India.

NIDIFICATION

The mallard breeds in the temperate parts of its range, including Kashmir. In Kashmir it lays in May and the early part of June. The nest is usually placed on the ground, generally near water. There are, however, numbers

of records of the nest being in elevated situations. Tunstall records finding a mallard at Etchingham, in Sussex, on nine eggs, in an oak-tree twenty-five feet from the ground. The author of *Rural Sports* states that a mallard took possession of a nest of a hawk in a large oak. Montagu, in his *Ornithological Dictionary*, records that a half-domesticated duck made a nest in Rumford Town, hatched her young, and brought them down in safety to a piece of water at a considerable distance. He does not say how the nestlings reached the ground, but G. Rogeron witnessed a mallard carrying her young to the water in her bill (see p. 105).

G. Rogeron, who has spent the greater part of his life in the study of ducks, gives an admirable account of the nesting operations of the mallard in his *Les Canards*. He asserts that the mallard pairs for life, and that in large flocks, where the birds seem to be all mixed up, they are in reality in pairs. This does not seem to agree with the observations of Major Stockley (see p. 31).

For the following account of the nesting operations of this duck I have drawn largely on the above-mentioned work.

Although the drake is very assiduous, gentle and amiable in respect of his spouse, he is unspeakably rough and brutal to all the other females in the vicinity. This has its object—that of securing feeding areas when the young arrive.

From autumn to spring wild ducks live peaceably in companies, large or small, and disputes rarely arise. But as soon as March ends the couples feel the necessity of separating themselves from their fellows. There ensue fights for breeding areas between rival couples.

The females begin to lay about the middle of April.

The usual site of the nest is in a tuft of reeds or long grass, or in the middle of a bush.

The nest is composed of dry leaves and the surrounding herbage, which the female draws down with her bill and presses with her breast and feet until a comfortable hollow is formed, which is copiously lined with down plucked from the breast of the female. From ten to twelve pale green eggs are laid. The female does not sit closely until the clutch is complete. She usually covers the eggs with leaves and grass before she quits them. If perchance she breaks an egg, she removes it with her bill and carries it to a distance. She does not fly direct from the nest, but steals through the herbage for a distance before taking to her wings. Similarly when returning she alights at some distance from the nest and walks quietly to it.

While the female is incubating, the drake keeps in the vicinity but never goes near the nest. Before the clutch is complete the male and female are affectionate. Afterwards the latter appears ill-tempered towards her spouse, and the drakes of the vicinity associate together. Before the young appear the male and female occasionally meet, but not from the time when they emerge from the egg until they are able to fly.

The female is a good mother and will fight with beak and wings a crow or magpie which attacks them. Sometimes, when a human being approaches the nest while the eggs are near hatching, the duck sits so closely that she will allow herself to be captured by hand on the nest. She does not, however, seek food for her young as the domestic hen does, and shows little intelligence in handling her offspring, sometimes causing them to swim until they become exhausted and drown.

Cock, writing many years ago, says that in Kashmir the mallard breeds in large numbers on the Anchar, Dall and other lakes. Boatloads of their eggs are brought to the Srinagar bazaars for sale, together with the eggs of the coot and the white-eyed duck. I believe that this traffic in the eggs of wild ducks is no longer permitted.

CHAPTER XXVII

THE PINTAIL

SCIENTIFIC NAMES

LATEST NAME.—*Dafila acuta*.

EARLIER NAME.—*Anas acuta*.

VERNACULAR NAMES

Sanh, Sink-par (N.-W. India). Dig-hāns, Sho-lon-cho (Bengal). Digunch (Nepal). Lampuchi (Central India). Kokarali, Drighush (Sind). Nanja, Nanda (Orissa).

DESCRIPTION

Length, 27 in. in full, 23 in. in eclipse plumage ; tail, 5 to 8½ in.; wing, 11 in.; bill, 2¼ in.

Drake in Full Plumage.—In my opinion the drake pintail is the most handsome of all the ducks, except perhaps the long-tailed duck (which is not found in India). His long neck and the slender, tapering build of the body give him the appearance of a racing yacht.

It is therefore but natural that M. Rogeron, who is a duck enthusiast, should be loud in his praises of the pintail. Let me translate that careful French observer : "On land he is seen to full advantage, as his whole form is visible, not being partly hidden as when in the water. Owing to the elegance of his slender form, his distinguished and graceful gait, with his slanting body, his thin curved neck, his arrow-like tail, he has been compared to the pheasant, and some have called him the pheasant-duck.

“On the water he displays at once the grace and majesty of his beautiful form, with the agility of the other ducks.

“But it is when on the wing that he is truly without peer, for no other duck can cleave the air with the same speed and ease. His tapering body pierces it, travels through it, like an arrow, meeting with scarcely any resistance there. Moreover, the sight of these excessively and singularly elongated birds—with the belly white, the narrow body which seems just a continuation of the long neck, the tail pointed and as slender as a snake’s—the sight, I assert, when they cleave the air in file, of their long, rapidly-plied, whistling wings, always appears marvellous, and carries you back to the past unknown ages of dragons and winged reptiles.”

The head and upper part of the fore neck of the drake are umber-brown, more or less glossed with purple. A white band, pointed at the upper end, runs down each side of the neck until it joins the white breast and abdomen. This white band is very conspicuous, both when the drake is in the water and in the air, and is almost as useful a mark of identification as the long neck and tail, and the slim body. The lower neck and most of the back are pencilled with wavy black lines on a white background, giving this part of the plumage a grey appearance. The feathers on the shoulder are long and lanceolate, each being velvety black with a narrow brown margin. Wings grey-brown, with a speculum or wing-band of four colours—buff in front, then bronze-green, next velvety black, finally white. Lower flanks buff. Black under the tail, with a narrow white band on either side. The elongated, tapering middle-tail feathers are black, the others are brown. Bill



PINTAIL

black, fading into blue-grey at the sides. Legs and feet dark grey.

Drake in Eclipse Plumage.—Resembles the duck. He goes into eclipse in June and moults again in October, but the full plumage is assumed gradually.

Duck.—A homely-looking bird in comparison with the drake, but she has much of his grace of form, including a diminished tapering tail. Her plumage is mottled greyish brown, with a number of concentric crescent-shaped buff bars on the back and shoulders. In the wing are two white bars; the space between these has sometimes a green tint.

She may be distinguished from other ducks by the length of her pointed tail and by the fact that her tail feathers are cross-barred instead of having pale margins, as is the case with other ducks.

DISTRIBUTION

The range of the pintail covers the whole Northern Hemisphere. The bird breeds in the northern part of its range and goes south in the autumn. It is fairly plentiful in winter in Scotland and the north of England, where it is taken in decoys and sold as "the sea-pheasant."

It visits India in large numbers in winter. According to "Raoul," it is one of the commonest ducks in Bengal. It is also plentiful in other parts of Northern India. It is likely to be seen in any part of India, Burma and Ceylon, but, curiously enough, it is said to be rare in Assam. It is not common in South India and very rarely visits South Tenasserim.

HABITS

The pintail is probably the fastest swimmer and flier and the best walker of all the ducks. It very rarely dives.

Owing to the speed at which it flies, Rogeron, as we have noticed, likens it to an arrow piercing the air ; its wing rustle is very characteristic—softer than that of most ducks : Hume describes it as a low, soft, hissing swish. It swims high in the water, with the neck arched and the tail slightly raised. It is perhaps the best of all the Indian ducks for the table.

The pintail is one of the latest ducks to arrive in India. Ordinarily it is not seen in large numbers until the end of October. Magrath, however, shot a pintail in Kashmir on 21st September 1911. It is one of the first ducks to leave India. This is what one would expect, as it nests in high latitudes.

Although by preference a fresh-water duck, the pintail has been seen in brackish water and in estuaries in Arakan. In India it associates in flocks, which may be composed of from a dozen to thousands of birds. Some observers have come upon flocks composed exclusively of members of one sex. Pintails affect open water in which there is plenty of vegetation.

FOOD

According to Hume the food of the pintail is very varied, being chiefly wild rice so long as this lasts. Besides this he has found in their stomachs, worms, small shells, both land and water, grass, aquatic plants, bulbous roots, corn, and insects of all kinds. Out of twenty-two stomachs examined by Hume three were “almost entirely full of small fragile fresh-water shells.”

Stuart Baker considers that the pintail is more an animal than a vegetable feeder, and believes that the bulk of its food consists of “small and fragile shell-fish” (*Indian Ducks*,

p. 222). This is not what one would expect of a bird which is so good to eat. I have never come across a pintail that tasted fishy or rank.

NIDIFICATION

The pintail breeds within the Arctic Circle and as far south as about 56° N. lat. in Europe, Asia and America. It occasionally nests in England. In that country the pintails pair about April. Montagu says, at the nesting season the notes of the drake are "extremely soft and inward; the courting note is always attended with a jerk of the head; the other generally resembles that of a very young kitten. In the spring the male indicates his soft passion by suddenly raising the body upright in the water and bringing his bill close to his breast, uttering at the same time a soft note. This gesticulation is frequently followed by a singular jerk of the hinder part of the body, which in turn is thrown up above the water." Thus the "display" is very like that of the mallard and the teal.

The nest is usually a mere depression in the soil, often under the shelter of a bush, usually not far from water, and is composed of small flags and grasses, and is thickly lined with down and feathers.

From six to twelve eggs are ordinarily laid.

Dall and Bannister, writing of America, say that the nest is usually in sedge. "As soon as the young are hatched, they withdraw from the river into small creeks and rivulets, where they remain until the ducklings are fully able to fly, when all repair to the great marshes, where, on the roots of the horsetail (*Equisetum*), they grow so fat that they frequently cannot raise themselves from the water."

Pearson found several nests of this species in Russian

Lapland. One year, on 25th May, he came upon a pintail's nest, with nine eggs, placed under a mass of dwarf birch. There had been a heavy snowstorm the night before, through which the duck had sat.

On 25th June he writes : "I flushed a pintail duck from her nest and shot her. . . . The nest, which was fifteen yards from the river, on an open piece of level ground covered with herbage some six inches high, was well lined with down and contained nine eggs partly incubated." This was rather an unusual site. Pearson remarks that the nest is usually under the shelter of a bush, and there were plenty of bushes in the vicinity of that nest.

Miss Haviland, in *A Summer on the Yenesei*, relates an interesting encounter with a pintail duck in July. She noticed a Richardson's skua stooping at a bird in the willow scrub ; she ran to the spot and saw what she mistook for a pintail duck with a nest, as the bird "flopped helplessly on the grass, as if willing to draw us from the nest, but after it was secured it turned out to be a drake in the middle of the moult, partly in breeding and partly in the so-called eclipse plumage. Most of the primary wing (flight) feathers had been shed, and the bird was quite unable to fly."

CHAPTER XXVIII

THE GADWALL

SCIENTIFIC NAMES

LATEST NAME.—*Chaulelasmus streperus*.

EARLIER NAMES.—*Chauliodus strepera*. *Anas strepera*.

VERNACULAR NAMES

Mila, Bhuar, Beykhur (N.-W. India). Peing-hāns (Bengal). Mail (Nepal). Kalpuchi (Central India). Burd (Sind).

DESCRIPTION

Length about 20 in. ; tail, $3\frac{1}{2}$ in. ; wing, $10\frac{1}{2}$ in. ; bill, 2 in. ; weight about $1\frac{3}{4}$ lb.

As in the case of most ducks, the female is smaller than the male and the dimensions and weights of individuals vary considerably.

Drake in Full Plumage.—Head and greater part of the neck reddish brown spotted with black ; sides of head, throat and fore neck cream-colour, more or less spotted with brown ; lower part of neck, upper back, shoulders and breast elegantly marked with black and white crescent-shaped lines. Rump black. Tail ashy, edged with white. The fore part of the wing is chestnut, behind that is a black patch, and last of all a white patch or, rather, band. Belly sullied white, the sides and thighs being marked with light brown crescent-shaped lines. Bill blackish. Feet dirty-looking yellow with black webs.

Both the drake and the duck may be readily identified by the colouring of the feet.

The drake in full plumage is handsome without being showy. The curved markings on the body give him rather a scaly appearance. As M. Rogeron puts it, "he might be set down as wearing a fine coat of mail, a little rusty on the back."

Drake in Eclipse Plumage.—In undress the drake loses his coat of mail. He then resembles the female, even to the bill, since this changes its hue to the dirty-looking orange of that of the female, but he retains the chestnut patch on the wings.

Duck.—The plumage of the female is mottled brown, very like that of the female mallard, but her wing displays the chestnut, black and white (albeit much less bright) of the male. Her bill is of sullied orange hue.

DISTRIBUTION

The range of the gadwall is the greater part of the Northern Hemisphere. It breeds in the northern parts of its range. It visits India in large numbers in winter and spreads itself fairly evenly over its range. Like the mallard, the pintail and other ducks, its numbers fall off the farther south one goes. It is a sufficiently rare visitor to Ceylon and the parts of India south of Mysore to render the shooting of it worthy of record.

HABITS

The gadwall is stronger on the wing than the mallard and so is a fine sporting bird. It is one of the best for the table. Although not a diving duck the gadwall can



GADWALL

dive well enough if occasion arises, and some sportsmen have lost many a wounded gadwall by reason of the diving capacity of the bird. The call of the gadwall drake is in many respects not unlike that of the mallard, but louder and more raucous. The call is often heard. Its power and frequency have doubtless given the bird its name *streperus*. The female utters a rather feeble *quack, quack*.

FOOD

As regards the food of the gadwall in India, Hume writes (Hume and Marshall, *Game Birds*, vol. iii., p. 183): "With us their chief staple food, so long as they can get it, is wild rice (though in some parts they feed in cultivated rice-fields largely), and later the seeds, leaves and flower-buds of all kinds of rushes and aquatic plants. Insects and their larvæ are also largely consumed, and sometimes small worms."

Stuart Baker states (*Indian Ducks*, p. 183) that gadwalls "are almost entirely vegetable feeders, subsisting much on wild and cultivated rice, water-weeds, etc., and seldom varying the diet with animal food. A drake shot in Silchar was found to contain a mass of small white worms in addition to some water-berries and half-ripe rice, but this in no way affected the flesh."

If any species of duck can be regarded as injurious to the Indian ryot, I fear that the gadwall is one; but it would not be just to condemn this fine duck until systematic examination of the contents of the stomach in various localities and at all seasons has been made. Here, then, is an opportunity for those who have leisure to add to our knowledge of the habits of ducks in India.

of darker hue. The bill is very characteristic of the species.

The drake often does not assume his full plumage until late in the winter, the change from eclipse to full plumage being very gradual.

DISTRIBUTION

The widgeon occurs in Europe, North America and Asia. It breeds in the northern parts of its range and migrates south in autumn.

It is a winter visitor to India as far south as Mysore, but does not come in nearly such large numbers as the teal or the white-eyed pochard. Most large bags of duck obtained in the United Provinces contain a few widgeon. The species is rare in Upper Assam, Bengal and Orissa. It is common in Mesopotamia in some years. It generally arrives in the plains of India in October and leaves in March.

HABITS

When seen on the water the widgeon, like the teal, looks rather a dark-plumaged duck. The males are distinguishable from all other duck by the canary-yellow forehead, and when they sit up in the water to flap their wings the white patches on the wing show.

In many respects the habits of the widgeon resemble those of the mallard. Both species are equally at home in salt and fresh water. Both associate freely with other kinds of duck, and sometimes occur in pairs or in small flocks.

The call of the widgeon is very characteristic. As with most ducks, the note of the male differs from that of the female, but in the case of the widgeon the voice of the male



WIGEON

is the louder. Finn likens the call of the female widgeon to a purring growl. Hett describes it as *purra*—loud and drawn-out. The call of the drake is a loud, wild whistle.

The following names for the widgeon are onomatopoeic: whew duck, whewer, peasan, cheyun. Hett describes the whistle as *whew-whew-whew*. Dixon renders it *mee-ow* or *nee-ow*. "Of all the voices of the night," writes R. Kearton, "I consider the prolonged double whistle of the widgeon the most unforgettable, whether it be uttered in the duck's winter quarters in the south or by the waters of a Highland loch. Where the bird has a mate sitting in the heather, it is equally arresting, the first part of the note consisting of a long, loud whistle, and the second, which follows instantly, of a short, low one. It has been, not inaptly, likened to the syllables *mee-gu*."

Like the mallard, the widgeon is an all-round bird, a Jack-of-all-trades but master of none. It flies, swims and dives well, but in each is inferior to some other species. It never dives unless hard pressed.

Although quick at rising off the water and swift on the wing, widgeon are comparatively easy to shoot, because they feed during the day among reeds and vegetation, which afford good cover to the sportsman.

Like those of most other duck, the wings of the widgeon make a noise as they flog the air—the wing rustle of the widgeon is sufficiently characteristic to enable experienced sportsmen to identify the bird by this alone.

FOOD

Like the mallard, the widgeon is omnivorous, but it is very fond of grazing. In this respect it resembles geese. This fondness for grazing explains what puzzled Reid—viz.

that he found widgeon commoner at Lucknow than they had ever been before in a year when the *jhils* were much below their average size and the smaller ones altogether dry. In all parts of India the widgeon avoids districts where there has been exceptionally heavy rainfall, because the floods destroy much vegetation and submerge the water-plants of which widgeon are fond. Widgeon feed both by night and by day.

Hume writes (*Game Birds*, vol. iii., p. 200): "With us in the N.-W. Provinces widgeon are more purely grass-eaters than any other duck." Grass forms their chief food, mingled with this a few fresh-water shells, insects and roots, and the leaves of rushes and a little grain. "I have often seen them on land grazing like geese." Along the coast they feed on all kinds of shell-fish—shrimps and the like—as well as on vegetable matter (green seaweed?) of various kinds.

"Of two birds shot in Silchar," writes Mr E. C. Stuart Baker (*Indian Ducks*, p. 192), "the stomachs contained nothing but the white tendril-like shoots of a small water-plant which grows profusely where the water is only a few inches deep. . . . They graze a good deal like geese, on young grass and also young crops, and, in addition to various other vegetable substances, eat water-snails, worms, insects and shell-fish of sorts."

Morris writes of the widgeon in England: "This species feeds principally on water-insects and their larvæ, small mollusca, worms, the fry of fish, and frogs, as also the buds, shoots and leaves of plants and grass, and these it browses on in the daytime."

NIDIFICATION

The "courting" antics of the male widgeon consist of the humping of the back, the raising of the wings and the depressing of the tail.

The widgeon breeds in the northern parts of its range. Stuart Baker is not correct in saying that it nests "probably nowhere within the Arctic Circle." Seebohm tells us, in his *Siberia in Asia*, that he found on the Koorayika river two widgeons' nests in June, one containing seven and the other five eggs. On many occasions he heard the birds calling on the Tundra.

In Russian Lapland Pearson found widgeons' nests with eggs late in June and early in July. He came upon two nests with six eggs and one with seven. The nest found by him on 2nd July at latitude 68° N. was in the scrub near a stream. It was placed under a small heap of dead sticks about twenty-four yards from the water. It was well lined with down.

The widgeon breeds in North America, throughout Northern Europe and, at any rate, in the western part of Northern Asia. It nests regularly in the Orkneys and the north of Scotland, occasionally in Ireland, and in 1898 a pair bred in Yorkshire. The usual site of the nest is a tuft of heather or a clump of grass, usually, but not invariably, near water. Collet records finding a widgeon's nest under a juniper bush on the fells near Lillehammer at least eight hundred yards from water.

The nest generally consists of the stems of aquatic plants, with moss, and some down plucked from the duck's breast. As in the case of many species, the duck covers the eggs when leaving the nest.

The eggs are laid in May, June and July. The clutch varies from five to nine. The eggs are creamy white.

CHAPTER XXX

THE SHOVELLER

SCIENTIFIC NAMES

LATEST NAME.—*Spatula clypeata*.

EARLIER NAME.—*Anas clypeata*.

VERNACULAR NAMES

Tidari, Punana, Tokarwala, Ghira (N.-W. India). Pantamuhki (Bengal). Dhobaha Sankhar (male), Khikeria Sankhar (Nepal). Alipāt (Sind). Chapti Chockha Patra (C. India).

DESCRIPTION

This duck is distinguishable at a glance from all other ducks by the bill, which is broader at the tip than at the base. The name *spatula* is derived from the spatulate shape of the bill.

Length, 20 in. ; tail, $3\frac{1}{4}$ in. ; wing, $9\frac{1}{2}$ in. ; bill, 3 in.

Drake in Full Plumage.—Head and neck beautiful glossy green, showing up the yellow eye. Back grey-brown, with pale edges to the feathers. Shoulders blue-grey. Metallic green speculum or wing-band. Breast white. Belly rich chestnut. Bill black or dark brown. Legs and feet reddish orange.

Drake in Eclipse Plumage.—In July the drake moults into a brown plumage like that of the duck. He retains this for about three months, when bright-coloured feathers

begin to appear, and then the drake assumes gradually the full plumage. Some individuals come into nuptial dress earlier than others. Many do not attain their full glory until March ; thus many of the drakes shot in India will look less smart than the specimen which sat to Mr Wright as a model.

Duck.—Apart from the spatulate bill, the duck has much the appearance of a female mallard. Her plumage is dark brown, each feather having a pale margin, which gives her the mottled appearance that characterises so many ducks. There is a little white and some grey in the wings. The eyes are brown and the bill greenish brown. The orange legs and feet are the one relief to her sober colouring.

N.B.—Very young shovellers have the bill shaped like that of other ducks, and not spatulate.

DISTRIBUTION

This widely distributed species ranges in both the Old and the New World from lat. 68° N. to lat. 10° N. It spends the summer in the northern parts of its range, where it breeds. It is much less migratory than many ducks, and nests all over Europe and even in North Africa, also in Asia as far south as Turkestan and Persia. It is, however, only a winter visitor to India and Mesopotamia. It arrives late and sometimes stays late. The great majority come at the end of October or early in November. At Nowshera shovellers have been observed in August in some years. The majority leave India in April, but the species has been noticed in Kohat as late as 20th May and near Rawalpindi on 26th June 1921. Although it is common enough in North Burma, it does not appear to have been

recorded from Pegu or Tenasserim. Sportsmen in these areas should record the shooting, or even the sighting, of this bird.

HABITS

Most observers poke fun at the shoveller on account of its large, clumsy-looking bill. As well might we mock the race-horse for its slender build. The shoveller is really the perfect duck. It has brought the duck's bill to something approaching perfection. Ducks are birds especially adapted to obtaining food from the surface of water; to this end the bill has been modified into a strainer. In no species is the strainer so perfect as in the shoveller. As Darwin pointed out, the mouth of the shoveller is like that of a whalebone whale. In consequence of possessing a perfect bill, the shoveller does not find it necessary either to dive for its food or to stand on its head in the water and tilt its tail towards the sky, or to go on to the land to feed, as other ducks do. The shoveller is able normally to find all the food it requires on the surface of the water. When the shoveller is confronted with unusual conditions, it finds its specialisation a serious drawback, just as a race-horse would if harnessed to a brewer's dray (see p. 180).

When the shoveller feeds, it swims with the body low in the water, the neck outstretched, and the bill and lower part of the head submerged, and scoops up in the bill matter floating on the water, moving the head from side to side to secure as much as possible. When thus feeding, it usually swims in circles. Other duck that are adepts at this method of obtaining nutriment are the garganey teal and the Brahminy duck; but these, especially the latter, are not such skilled performers as the shoveller. Now, since the shoveller obtains all its nourishment in



SHOVELLER

this manner, it is evident that the more scum there is on the water, the easier is the task of the shoveller. Thus it is that the shoveller lives by preference on dirty, scum-covered ponds near villages. Its menu renders it a poor bird for the table. After the Brahminy duck and the smew, I should put down the shoveller as the worst of the ducks for eating purposes. Shovellers feed both by night and by day.

As one might expect in view of its feeding habits, the shoveller is an indifferent diver and not a very fast swimmer. It flies strongly when once it is fairly on the wing.

Shovellers are rarely seen in large flocks; this is doubtless the result of their feeding habits. Shovellers mix freely with other ducks, but they are often found alone on tanks which have no attractions for other wild ducks.

The call of the drake has been syllabised as *Took*, *took*, or *Quck*, *quck*. The duck emits a mallard-like quack. The shoveller, however, is not a noisy fowl, and does not often lift up its voice, except at the breeding season. Mr Pinto, the Curator of the Lahore Menagerie, considers that the shoveller is the least intelligent of the ducks of his acquaintance. He finds it difficult to keep shovellers for any length of time, because they, sooner or later, fall victims to the cats that prowl round the pond at night. The duck are provided with an island on which they are comparatively safe from the attacks of cats; the shovellers, however, when not feeding, seem to prefer to rest on the mainland at night-time.

FOOD

Both Hume and Stuart Baker assert that the shoveller is omnivorous and that the bulk of its diet is animal.

There can be no doubt of the truth of the second assertion, but the first does not appear correct.

M. Rogeron writes (*Les Canards*, p. 274) of the shoveller: "It is very difficult to keep in captivity, not because of its disposition, which appears to be sociable enough, but doubtless because of its feeding peculiarities. Despite several attempts I have never succeeded in keeping them for long . . . because they did not seem to understand the food I placed at their disposition, since it was doubtless unlike that to which they had been accustomed. . . . One I kept I fed with moistened bread and flies thrown on the surface of the water; but owing to the difficulty of keeping a bird of the size of a shoveller on a diet composed largely of flies, it soon died of anæmia. . . . The whole day its sole occupation was seeking food, either by skimming lightly the surface of the water with its big bill, or in probing in the slime or the mud at the water's edge; nevertheless it was unable to satisfy its hunger."

Others, however, have been more successful than Rogeron and have succeeded in keeping shovellers for some time on moistened bread or grain. They used to thrive in the Lahore Zoological Gardens on the same food as the other ducks, but had there a considerable area of water, which was muddy and dirty enough to delight the heart of any shoveller.

There seems no doubt that the shoveller requires quantities of insect, or at any rate animal, food.

It is certainly not injurious to the cultivator.

NIDIFICATION

As has been stated, the shoveller does not normally breed in Asia farther south than Northern Persia. Its

nest has never been found in India; but there is some evidence to show that it may, on rare occasions, breed there.

Layard once came upon some very young shovellers in Ceylon.

More recently Captain W. M. Logan Home saw at the end of August, at Nowshera, a shoveller moulting and unable to fly.

The typical nest is a hole scratched in the ground and lined with a little grass and abundance of down plucked from the duck's breast. The nest is usually concealed in high grass or under a low bush. From nine to fourteen eggs are laid. Eggs have been found in May, June and July.

CHAPTER XXXI

THE SHELDRAKE

SCIENTIFIC NAMES

LATEST NAME.—*Tadorna tadorna*

EARLIER NAMES.—*Tadorna cornuta*. *Tadorna vulpanser*.
Anas cornuta. *Anas tadorna*.

VERNACULAR NAMES

Shah-Chakwa, Sufaid Surkhāb, Rararia (N. India).
Niruji (Sind).

DESCRIPTION

Length, 24 in. ; tail, 4 in. ; wing, 13 in. ; bill, 2½ in.

The sexes are alike, save that the female is rather smaller, her colouring is a little duller, and she lacks the knob on top of the bill at the base. Head and neck glossy green, almost black. All the rest of the body white, except (1) a pale chestnut band that encircles the body at the breast and the top of the back, (2) a pale chestnut patch under the tail, (3) a black longitudinal band that runs down the middle of the abdomen, (4) a black band on each shoulder, (5) a black tip to the tail, (6) a green speculum or wing-band, (7) the black and chestnut flight feathers. The bill is blood-red and the feet and legs pale pink.

Young birds are dull editions of the adult. This is one of the most showy of the Indian ducks: hence the vernacular name *Shah-Chakwa*—the king Brahminy duck.

DISTRIBUTION

The sheldrake breeds in the north temperate parts of Europe and Asia and migrates south in the autumn, visiting Southern Europe, Northern Africa, Western Asia, Northern India, Southern China and Japan.

It is not a common bird in India, presumably because it is essentially a sea-duck and likes the seashore where it is clean ; and, as Stuart Baker remarks, "most of our seashore is not clean, and very little of it is visited and well known, so that even the few birds which do haunt it may well escape observation."

Major Magrath states that the sheldrake is a regular spring visitor to Bannu in small numbers. The birds seen there are obviously those which have wintered farther south in India. It is fairly common in Mesopotamia, where it has been observed as late as 1st July.

Hume gives the twenty-second parallel as its southern limit. The farther south and east one goes the less is the likelihood of seeing this bird.

As regards the United Provinces, Jesse states that there are four skins obtained locally in the museum at Lucknow.

Captain M. A. Girdlestone saw it twice at Fatehgarh on a lake near the Ganges.

Mr F. B. Scott shot a pair in the Sitapur district in 1912.

As regards Bengal, Mr C. M. Inglis saw it on three occasions in the course of thirteen years in the Darbhanga district, Tirhoot.

One was shot in Arakan in 1910.

Finn saw it on several occasions in the Calcutta Bazaar. It has been recorded in Central India by Young.

Its occurrence in India is sufficiently rare to cause the shooting of it to be worthy of record.

HABITS

The sheldrake, like the Brahminy duck, is believed to pair for life. Although it occurs on fresh water, it is essentially a sea-bird.

It swims high in the water and walks well ; indeed it secures most of its food on the seashore. By universal consent it is not good to eat. If only birds of prey would leave it unmolested, it would, on account of its showy plumage, be an example of "warning coloration"! The sheldrake is a wary bird. The call of the drake is a low whistle. Naumann describes it as "a soft whistling singing, slowly uttered and continued sometimes for half-a-minute at a time, reminding one of the jodel of various snipe-like birds." The note of the female is loud and harsh. Finn describes it as "something between a quack and a bark." Some observers imitate it by the syllables *Kor, kor . . . quark*.

FOOD

Hume states (Hume and Marshall, *Game Birds*, vol. iii., p. 136) that all the sheldrakes he examined had fed chiefly on land and water shells, and fresh-water shrimps of kinds, but the stomachs also contained some vegetable matter and a quantity of coarse sand.

Stuart Baker writes (*Indian Ducks*, p. 138): "Their food appears to be mainly animal, and consists of shell-fish, water-insects, prawns and shrimps, and practically all or any of the small animal life found on the shores at low tide or in shallow water. A small amount of vegetable matter is doubtless eaten now and then, but merely as one takes vegetables with a meat diet."

In England the sheldrake eats much seaweed.

It cannot be charged with injuring the cultivator.



SHELDON AKE

NIDIFICATION

The sheldrake breeds in Northern Europe and Asia. The nest has been found as far north as Greenland and as far south as Southern Germany. It nests occasionally in the British Isles and France.

The shelduck lays her eggs in a hole, by preference the burrow of some animal. It used to be said that the bird selected an "earth" in which the fox lived, and thus left her eggs to the protection of the fox when she went off to feed! So firmly established was this belief that the sheldrake was named *Tadorna vulpanser*, the fox-goose! The reason for this belief was that the feathers and eggs of the shelduck are sometimes found near the "earth" of a fox. The true explanation seems to be that Master Reynard had made a meal off the unwary sheldrake. It may perhaps be said that the bird lay at the side of the fox, but it was the inside of him!

A burrow is not invariably selected by the sheldrake. The eggs are sometimes placed in holes in cliffs or rocks and in the cleft between two rocks. There is a case on record of a shelduck having reared her brood in a hole in a haystack.

Montagu gives the following account of the nesting operations of this species: "The female makes choice of a rabbit burrow to deposit her eggs in, which are numerous, sometimes as many as sixteen, and which she covers with down from her own body. The nest is generally near the water, where she leads her young soon after they are hatched. It is rarely met with remote from salt water; but if the eggs are taken and hatched under a hen, the young become tame, and may be kept in ponds, but it seldom breeds in confinement. A

nobleman informed me he had one instance only in several years, although they had the range of a very extensive canal. The female brought out nine young ones. The eggs are white, about the size of those of a common duck.

“It is very tenacious of its young, and, it is said, will carry them from place to place in its bill: indeed it is probable when the young are hatched high above the water, the parent birds must carry them down.”

As regards the correctness of the surmise in the last paragraph of the quotation, I have dealt at some length on page 104 with the alleged habit of ducks carrying their young from lofty nests to the water.

The sheldrake has been bred in the London Zoological Gardens.

As is usually the case with ducks, the female alone incubates. The male sheldrake, however, stays in the vicinity of the nest and joins the female when she comes out to feed.

Sheldrakes' nests are often found close together.

The nesting season lasts from April to July, most eggs being laid in June. The clutch of eggs varies from seven to sixteen.

CHAPTER XXXII

THE RUDDY SHELDRAKE

SCIENTIFIC NAMES

LATEST NAME.—*Casarca ferruginea*.

EARLIER NAMES.—*Casarca rutila*. *Tadorna casarca*.
Anas rutila. *Anas casarca*.

ENGLISH NAMES

Ruddy Sheldrake. Brahminy Duck.

VERNACULAR NAMES

Chakwa (male), Chakwi (female), Lāl Surkhab (N.-W. and Central India). Bugri (Bengal). Mungh (Sind). Panda Hansa (Orissa). Sarza, Chakrawāk, Bapana Chilluwa, Nir-batha, Nir-koli (S. India). Hinthā (Burma).

DESCRIPTION

Length, 26 in. ; tail, 5 in. ; wing, 15 in. ; bill, $2\frac{1}{8}$ in.

There is very little difference between the male and the female in appearance. The colouring of the latter is usually duller, her head is paler, and she lacks the black collar. She is, of course, smaller. The general colour of the plumage is rich brownish orange : hence the adjectives “ruddy” and “rutila.” Individuals vary a good deal in tint. The head and neck are buff, sometimes so pale that it might be called cream-colour. The wings and tail are black, with a dark bronze-green sheen on some of the wing feathers. Except during part of the winter the

drake has a narrow black ring or collar round the neck. The loss of this necklace is the only change in his appearance caused by the summer moult. The bill, legs and feet are black.

The pale head, ruddy plumage, black-edged wings and goose-like flight of this bird render it easy to identify.

DISTRIBUTION

South and East Europe, North Africa, Asia and Japan. It is rare in Western Europe, but stragglers sometimes visit England. In Africa it is not often seen east of Tangier. In summer it is abundant in South Russia and Turkey, uncommon in Greece, plentiful in Asia Minor and South Asia, north of the Himalayas. It visits India in great numbers in winter, there being few parts of the country where it is not seen, but it is not common in Ceylon or South Burma.

HABITS

Although essentially a river-bird the ruddy sheldrake is sometimes seen on *jhils*, where it is not welcomed by the sportsman, as not only is it a poor bird for the table, fit only for soup, but it is what Frank Finn calls a showy spoil-sport, because it is very wary and appears to consider it a duty to warn every other bird in the vicinity of the approach of the sportsman.

The ruddy sheldrake has many of the habits of the goose. It is strong on the wing and its flight is goose-like. Although a good swimmer, the Brahminy duck spends much time on land, as does the goose. No sight is commoner during the cold weather in India than that



RUDDY SHELDRAKE

of a pair of these birds resting on a sand-spit in a river. They are said to pair for life. They commonly go about in couples. I have, however, on occasions noticed twenty or thirty of them feeding on the half-dry mud on the foreshore of the Ganges at Ghazipur while the river was receding in winter. When thus seeking food in company, Brahminy ducks, at a distance, look like poultry feeding. Unlike most ducks they obtain much of their food during the daytime. They call frequently, both by day and by night. Their cry is a curious cackle, which may be rendered *ā-ā-ā-ong*.

There is a legend prevalent in most parts of India, including Nepal, that the souls of unfaithful human lovers have entered into these birds, and that they are not permitted to approach one another, but have to remain on opposite sides of the river, so they keep on calling "*Chakwa, main aon?*" (May I come?). "*Nahin, chakwi*" (No, chakwi). Certainly *chakwa, main aon* is not a bad rendering of the call. So well known is the legend that Kirkpatrick states that in Nepal adultery is termed "*chakchakwe* in allusion to the habits of the bird called by Europeans the Brahminy goose."

"Among Hindus," writes Raoul, "Brahminy ducks are allowable as food to the highest caste, and are also greatly prized for their medicinal properties. The dried and powdered gizzard of one of these ducks is considered as a panacea against all disorders of the liver and spleen."

The Brahminy duck is one of the last of the ducks to leave India and among the earliest to return. This is probably due to the fact that its breeding grounds are comparatively close to India.

Although the Brahminy duck rarely dives, it can do so when necessary. It thrives well in captivity. Captive birds often breed in cool countries.

The Brahminy ducks in the Lahore Menagerie are inclined to be domineering. They "lord" it over the other ducks and make them give way at the feeding dishes; but they in their turn have to make room for the cranes, geese and swans.

FOOD

Hume writes (Marshall and Hume, *Game Birds*, vol. iii., p. 128): "No doubt they will graze on young grass and corn when this comes down to the water's edge, and in *jhils* gobble up various kinds of water-weeds and seeds, but tiny fry of fish, shrimps and all kinds of small land and water shells have proved the chief food of those I have examined. In the Jumna I continually found their stomachs half full of small spiral univalve shells; tame ones I had were fed on tiny frogs, and, though they are decidedly omnivorous, and do at times eat grain and green shoots of all kinds, I think that in India at any rate the animal element predominates in their diet."

I entirely concur with the above. I have noticed on the Ganges how fond Brahminy ducks are of picking food from the mud left by the receding river in the early winter.

There is plenty of evidence that the Brahminy duck readily eats carrion. Thus a writer in *The Indian Sporting Review* for 1854 (quoted by Jerdon, *Birds of India*, vol. iii., p. 792) says "it is often found devouring carrion on the banks of rivers."

Rainey writes (Hume and Marshall, *Game Birds*, vol. iii., p. 128): "I have heard from several sportsmen that

it is a foul feeder, and I myself on one occasion, in 1868, actually saw it eating carrion."

Stuart Baker writes (*Indian Ducks and their Allies*, p. 130): "There can be little doubt also that they sometimes fall so low as to take offal." Stuart Baker further says (*loc. cit.*): "They are very carnivorous and will take almost anything they can get, including fish, flesh, and all kinds of grain, water-weeds, seed, and growing crops, in which they are sometimes found grazing like geese."

According to the *Punjab Gazetteer—Ludhiana*, p. 15, the Brahminy duck feeds often on grain inland in large flocks. Personally I have never seen more than about thirty of the birds in company.

NIDIFICATION

The nesting season lasts from March to July. Nests have been found in Mongolia, Tibet, Turkestan, Asia Minor, Palestine, Russia, Bulgaria, Turkey, Greece and North Africa as far west as Tangier.

The nest is usually in a crevice or hole in a rock, a cliff, the ground, or even a tree. Prejevalski found the nests of this species in the fireplaces of the houses of uninhabited Mongolian villages. Occasionally the disused nest of a bird of prey is utilised.

From eight to sixteen white eggs are laid.

Lieut.-Col. R. M. Betham sent to the Bombay Natural History Society an extract from a letter written by Captain A. R. B. Shuttleworth at Camp Kizil Ben, Chinese Turkestan, on 19th April 1909. This is printed on page 751 of vol. xix. of the Society's journal. It runs: "I was after tiger (woolly tiger) one day, and as I was sitting over a kill, I noticed, to my intense surprise, a couple of Brahminy

come and settle on a tree quite close to me. I had no idea these birds ever settled on trees, as I have never seen them do so in India. My surprise was heightened when I saw one of them go into a hole in the tree. Later on I found a newly made nest in this tree, although I was too early for the eggs. Yesterday, while riding from the last camp to this, a pair of Brahminy flew past me, flying low, and one left the other and flew into an old poplar quite close, and disappeared into a hole. This is the second time I have seen Brahminy do this. I got off my pony, climbed the old tree myself, and out flew the old bird almost into my face. I looked down the hole but could see nothing; I lit a match and put it down the hole as far as I could and discovered there were seven eggs. Unfortunately I could not reach them. I sent to the nearest village and got an axe, and after making a hole in the side of the tree got all seven eggs. The first blow of the axe disturbed a merlin, which was sitting in its nest in a sort of declivity at the top of the same trunk which contained the hole in which the Brahminy had her nest. . . . The merlin's nest contained two red eggs, which I took. . . . There is no water within eight miles of this tree. . . . The drake Brahminy kept on flying round the tree, making a fiendish noise, but the hen made herself scarce."

Elwes and Buckley say that in the Dobrudscha the nest is difficult to find, being in a hole sometimes in the middle of a cornfield, and the male bird keeps watch near by, ready to call off the female if anyone approaches. Möschler says that in South Russia, when the species nests in a hole in a tree, the male perches on the tree and gives warning in case of danger, whereupon the female leaves the nest and both birds fly round.

An interesting account of Brahminy ducks at the nesting season is given in *From Lahore to Yarkand*, by Hume and Henderson. These observers found the birds at the hot springs above Gokra, at an elevation of 16,000 feet, on the small lakes at the salt-plain and along the Kira-Kash river. The young were at that time (July) scarcely able to fly. When approached, the mother made them all dive, by swimming and flapping on to each of them as it showed itself above the water. The mother also "pretended to be wounded and lay on the water, every now and then, with wings spread out, as if unable to fly."

I have quoted some of the words of Hume *verbatim* because I do not think it is correct to say that the mother "pretended to be wounded." This so-called injury-feigning instinct is fairly common among birds and most kinds of duck. Partridges behave in the same way. The movements in question are caused by intense excitement or fear. Some men (and women) when very angry will throw themselves on the ground and kick the air and bite any object, animate or inanimate, that happens to be near. King John is said to have behaved thus after having been compelled to sign Magna Charta. Such movements are more or less involuntary, due to the individual losing control of himself under fear, anger or excitement; so are the injury-feigning instincts of birds. They may, in the case of the latter, sometimes serve a useful purpose by attracting the attention of the enemy and thus giving the comparatively helpless young time to seek cover. If such behaviour is useful it would tend to be preserved, and even accentuated, by the action of natural selection. This, however, does not mean that the bird deliberately tries to deceive the intruder. A bird having eggs will behave in the same way when such

conduct can serve no useful purpose. It will also continue the movement after it has put some object between itself and the intruder so that it cannot be seen.

Macgillivray describes how once, when riding in Ross-shire, he saw an old teal with eight newly hatched young ones cross the road. He dismounted, lifted the little ones up and carried them a short distance down the road to a ditch, for which he concluded they were making. All the while he was handling and carrying her ducklings the old teal kept fluttering about him, frequently coming within reach of his riding whip.

Now, if this so-called injury-feigning is a deliberate attempt by the mother bird to attract attention to herself and so give the young ones a chance of escaping, the teal of which Macgillivray speaks would have thought, as soon as he had picked up her young one: "The game is up! I have not succeeded in drawing that man away from my chickens; it is now quite futile for me to feign injury. I had better keep at a safe distance and see what happens."

A little consideration will suffice to convince any reasonable person that for a bird to feign a broken wing, to distract the attention of a man from her young, entails not only considerable knowledge on the part of the bird, but a logical mind and highly developed reasoning powers. She must know, in the first place, how a bird with an injured wing behaves. As the average duck never sees another duck, or any other bird, with an injured wing, she cannot know how it behaves in such circumstances. She must also have learned that a bird with the wing injured is easier to catch than one not so handicapped: what means has she of learning this fact? Further, she

must think that a human being would sooner catch her than her young ones, and that he knows it is easier to catch a wounded bird than an uninjured one.

Knowing all these things, she must put two and two together and then behave as though they made four.

The fact that ducks of many different species behave in this way further militates against the theory that the injury is deliberately feigned with the object of deceiving human beings and distracting attention from the young birds.

There is far too great a tendency to put anthropomorphic interpretations on the actions of birds and beasts, to attribute to them reasoning powers which they do not possess.

It is far nearer the truth to regard a bird at the nesting season as an automaton—a creature driven by instinct to act in a manner of which it cannot know the significance. The instinctive acts of dumb creatures, particularly of some insects, are almost uncanny.

The Brahminy duck breeds regularly in both the London and the Paris Zoological Gardens. Huret gives an interesting account of its nesting operations at Paris. The eggs were laid in the latter part of April in a wooden box lined with rushes and straw and placed by a stream. The duck added to the straw some down pulled from her own breast. When she began to sit, the drake, who had hitherto not paid much attention to her, began to keep strict guard, and drove away all intruders.

In this respect, as in several others, the habits of the ruddy sheldrake resemble those of geese. M. Rogeron, in his *Les Canards*, gives an interesting account of Brahminy ducklings. "Although," he writes, "they are robust and

easily reared, they are neither interesting nor agreeable, knowing nothing but how to eat, digest their food and ever to demand food by their incessant clamour ; this happens even when their dishes and plates contain food. However, there is one compensation : at the end of two months they have grown so much as to be barely distinguishable from adults ; thus you are able, to your great satisfaction, to rid yourself of these uninteresting dependants ! ”

The Brahminy ducks have never bred in the Lahore Menagerie, presumably on account of the high temperature that prevails from May to September inclusive.

CHAPTER XXXIII

THE COMMON TEAL

SCIENTIFIC NAMES

LATEST NAME.—*Nettion crecca crecca*.

EARLIER NAMES.—*Nettion crecca*. *Nettion crecca*.
Querquedula crecca. *Anas crecca*.

VERNACULAR NAMES

Chota murghābi, Kerra, Lohya Kerra, Putari, Sou-churuka (N.-W. India). Naroib, Tulsia-bigri (Bengal). Patra (Central India). Baigilagairi (Nepal). Kardo (Sind). Killowai, Sorlai-haki (South India).

DESCRIPTION

Length, 15 in. ; tail, $2\frac{3}{4}$ in. ; wing, $7\frac{1}{2}$ in. ; bill, $1\frac{3}{4}$ in. ; average weight about 12 oz. in England. According to Frank Finn, in India the weight varies from $7\frac{3}{4}$ oz. to 12 oz.

Drake in Full Plumage.—Head and neck chestnut or bay, set off on each side by a broad glossy green band narrowly margined with cream or buff, which runs through the eye down the side of the head and neck. The upper buff margin extends as a narrow band curving over the eye to the base of the bill, thence to the chin. Back and sides of body a mixture of black and white in fine undulated lines. On the back are a few long lanceolate feathers, buff with a black outer margin. Wings brown with a brilliant metallic green wing-band or speculum narrowly bordered by white.

This band, which is present in eclipse plumage and in the duck, has led to the bird being called the green-winged teal. The tail consists of sixteen feathers—brown with whitish edges. Chin dark brown. Breast white heavily spotted with black, like the breast of the thrush. Abdomen white, vent black. Bill black. Feet brownish grey.

Drake in Eclipse Plumage.—Resembles the duck, save that breast is usually plain brown.

As the undress plumage is assumed about July and the full colouring is not assumed until January or February, many of the drakes shot in the early part of the season are in intermediate plumage.

Duck.—Upper plumage dark brown, the feathers having pale buff margins. The lower parts are cream, spotted with brown, the spots being largest on the breast. A green wing-band or speculum as in the drake, but not so bright, and the borders are buff instead of white.

DISTRIBUTION

The common teal ranges over Europe, Asia, North Africa and America. It breeds in the temperate parts of its range. It is only a winter visitor to India, arriving in August, September and October, and leaving in April. 2nd May is the latest date on which its presence in India has been recorded. The teal is found in winter in most parts of India, Burma and Ceylon, but is rare in Malabar.

HABITS

The teal visits India in perhaps greater numbers than any other duck : every bag of duck obtained in India contains a fair proportion of teal. Although so abundant, it is not usually seen in very large flocks ; it associates freely



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with other kinds of duck. *Jhils*, large and small, are its favourite resorts, but it is often seen on rivers and streams. Its flight is very swift, and it often changes its course suddenly when on the wing. Although teal do not seek their food by diving, they dive well when this is necessary for them to escape from danger. Like most non-diving ducks, teal feed mainly at night. They are one of the best of ducks for the table.

The note of the duck is a soft, subdued quack ; that of the drake a whistle, and, at the breeding season, a low jarring sound.

FOOD

All observers are agreed that the diet of teal is mainly vegetable.

Theobald, Stuart Baker and Finn state that teal also eat insects, worms, etc. This is what one would expect from what other species of duck do ; but, as Hume pointed out many years ago, teal kept in tealeries in India “*thrive à ne pouvoir plus*,” without any animal food, which some of the larger ducks do not. Moreover, Hume could find no trace of animal food in the stomachs of wild teal which he examined. For the above reasons Hume graded teal as “essentially vegetarians.”

As teal are very rarely seen on land under natural conditions, and seem to find their food in weedy shallows or swamps, it is improbable that they do much harm to the young spring crops in India. This, however, is a matter which can be determined only by investigation.

NIDIFICATION

The antics of the drake teal at the breeding season, and indeed throughout the winter, resemble those of the mallard.

He raises the front part of his body out of the water, extends and curves his neck, erects his tail and emits a kind of grunt ; then he drops back into his normal position in the water. He does this repeatedly, as though, to use Rogeron's expression, he were on springs.

The teal breeds in the north-western part of its range : in Iceland, Finland, Lapland, Scotland, England, Central Europe, Siberia, Manchuria and North Japan. The nest has been taken occasionally in Spain, Italy and Greece.

The drake keeps the duck company during the breeding season longer than is usual among ducks, and sometimes does not leave her to foregather with his own sex until the young ones are well grown.

The nest is on the ground in a dry place, either well concealed by grasses, rushes or bushes, or under a root. One nest was found in an alder stump. Sometimes the nest is on a dry spot in a marsh. The nest is of the usual duck type, being composed of dead rushes, reeds, flags, grass, etc., well lined with down plucked from the duck's breast. From eight to twelve eggs are laid, usually in April, May or June.

In England pheasants and partridges sometimes lay their eggs in the nest of a teal or a mallard, and these strange eggs are hatched along with those of the duck.

The teal sits very close. Southwell once lifted from her nest a sitting teal in Inverness-shire.

Like so many other duck, the mother teal makes a great commotion when danger threatens her young.

"The stratagems," writes Southwell, "resorted to by this pretty little duck to draw off the attention of the intruder from its brood exhibit a charming display of maternal affection ; the little ones, too, have a marvellous

power of concealment. On one occasion I disturbed an old teal which was brooding over a large family : off went the old bird fluttering along as if in the last agonies of death, and the young scattered in all directions ; but keeping my eye on one particular baby teal, I saw it squat down a few yards off, its neck stretched out and its little body close to the ground where some dead leaves were lying ; the concealment was so perfect that had I not actually seen it assume the position, I should most certainly never have detected it, nor did it stir from the spot till I stooped and took it up with my hand."

On p. 193 I have discussed the so-called injury-feigning instinct of ducks.

CHAPTER XXXIV

THE GARGANEY TEAL

SCIENTIFIC NAMES

LATEST NAME.—*Querquedula querquedula*.

EARLIER NAMES.—*Querquedula circia*. *Anas circia*.
Anas querquedula.

ENGLISH NAMES

Garganey Teal. Blue-winged Teal.

VERNACULAR NAMES

Chaitwa, Khira, Patari (N.-W. India). Ghangroib, Girria (Bengal).

DISTRIBUTION

The garganey teal is a cold-weather visitor to India. It is one of the earliest ducks to reach India, beginning to arrive in August. It does not leave until April or May. It spreads itself all over India, Ceylon and Burma. It winters in South Asia, Japan, and the islands as far east as the Celebes.

It breeds in England and in other parts of Northern Europe, also in Northern Asia.

DESCRIPTION

Length, 16 in. ; tail, $2\frac{1}{2}$ in. ; wing, 8 in. ; bill, $1\frac{3}{4}$ in. ; weight, 14 oz.

Drake in Full Plumage.—A very handsome bird. Crown

and nape dark brown. A broad white eyebrow touching the eye and running down the back of the neck until it meets its fellow at the back. Chin black. The rest of the head is brown tinted with pink. Breast chocolate-brown barred with white or cream. Belly white, speckled with brown towards the vent. Flanks white with fine black wavy pencillings. Back dark brown, each feather having a pale margin. There is a green band or speculum in the wing, with a narrow white border on each side. The front part of the wing is bluish grey: hence the popular name blue-winged teal. The wing is sometimes partly hidden by the long feathers of the shoulders. The shafts of these are white, the outer web grey and the inner one black.

Drake in Eclipse Plumage.—In July the drake assumes plumage like that of the duck, except that he retains the green speculum and the blue-grey or lavender of the front part of the wing. He does not reassume his bright plumage until February or March: hence only a small proportion of the drakes shot in India will closely resemble the individual in Mr Wright's picture—the great majority will look like females having the wing of a male.

Duck.—Upper parts mottled brown, lower parts white, with dark spots in front and behind. There are on the head two white stripes—one over the eye, like an eyebrow, and the other below, parallel to the first. Chin and throat white. The wing is brown with two indistinct white bars. In both sexes, bill, feet and legs are dark brown.

HABITS

The garganey teal visits India in large numbers every winter. It appears to be most abundant in Bengal. My

friend, Mr Frank Finn, who spent his time in India chiefly at Calcutta, writes of the garganey (*Indian Sporting Birds*, p. 17): "No duck visits us in greater numbers than this; in fact, if what one saw in the Calcutta Bazaar in the nineties was any criterion, this bird is in winter the most numerous duck in the country, surpassing even the whistler and the common teal." I was surprised when I read this, for my experience shows that the garganey teal is not a common bird in the Punjab, and although not rare in the United Provinces, is less common in the western parts than the mallard and in the eastern than the white-eye. Unfortunately I did not keep any shooting records. It is only by such that questions of the relative abundance of ducks can be settled.

Let us refer to the few I have since collected and cited in this volume.

The records of the bags made at Bhawalpur show that of the thousands of duck shot there only four were garganey teal. These were shot—three on 27th October and one on 28th October 1922. The Kashmir records (p. 24) cited by Mr Wright show only one garganey teal, and that bird was shot in October 1921. Mr A. E. Jones records a small flock on the Sutlej near Simla—elevation 2500 feet—at the beginning of September 1909. As this duck is one of the earliest to arrive, it would appear that, although it may tarry in Kashmir and the Punjab on its migration to the south, it does not winter in these parts.

In the Basti district thirteen of the one hundred and twenty-seven duck shot by Mr Cotton in 1912-1913 and seven out of one hundred and ninety-one shot in the following year consisted of garganey teal. Unfortunately



GARGANY TEM

Mr Cotton does not give the dates on which these various garganey teal were shot.

Mr W. Jesse writes (*Ibis*, April 1903, p. 176) of this species : "... visits us, like the common teal, in immense quantities early in the cold weather. It appears to go south in large numbers after November, returning about February."

What Jesse says is doubtless correct, except that the garganey teal appears to go east rather than south, judging by its abundance in Bengal. It is plentiful in Burma but not in Arakan. It is found in all other parts of India and Ceylon.

The garganey teal associate in large closely packed flocks, which seem to prefer big sheets of water to small ones. This habit of close-packing is of course taken advantage of by the bird-catcher, and helps to explain the great numbers of garganey teal on sale at the Calcutta market.

The garganey teal is swift on the wing, and often flies in close formation. It dives well. It is not a noisy bird : the duck occasionally quacks and the drake emits what Finn describes as "a sort of gurgling rattle, most unmistakable when once heard." Country folk in England render the drake's call by the word "crick" : hence the bird is known locally as the cricket teal.

Being swift on the wing and affecting large sheets of water the garganey teal is more difficult to shoot than some ducks. It is a good table bird.

FOOD

The garganey teal feeds chiefly at night. Its diet is in the main vegetable, but all manner of other food is

taken. This species, like the shoveller, and, to a lesser extent, the Brahminy duck, has the curious habit of swimming low, with neck extended and head half submerged, and skimming the surface with the bill.

As this duck is charged with doing much damage to crops by Hume and Stuart Baker, let us hear what they have to say on the subject. We have already noticed (p. 46) what Mason found in two stomachs.

Hume writes (Hume and Marshall, *Game Birds*, vol. iii., p. 218): "Weedy tanks are preferred by this teal. They live on the tender weeds and grasses . . . and come in some parts of the country in such crowds into paddy-fields as to destroy acres of crops at one visit. Their food is chiefly vegetable; tender shoots and leaves of water-plants, seeds and bulbs and corms, and slender rhizomes of rushes, sedges and the like form the bulk of their diet, to which at times large quantities of rice, wild and cultivated, must be added. Besides this, they eat occasionally all kinds of insects and their larvæ, small frogs, worms, fresh-water shells and the like; but, as a rule, this forms inland in India a very small proportion of their food, and no traces of anything but vegetable matter have been observable in the stomachs of many I have examined. On the sea-coast it is different. There I found shrimps, delicate shells, and other animal substances in abundance in their gizzards."

Stuart Baker writes (*Indian Ducks and their Allies*, p. 231): "They feed in the smaller tanks and *jhils*, and also in the paddy-fields, and on various young land-crops. . . . Their staple diet is vegetarian, and of vegetable matter the staple articles are rice, both cultivated and wild, and the young leaves and shoots of various water-plants. They

also eat various kinds of seeds, roots, etc., and any animal matter in the shape of worms, snails and shell-fish, etc., which force themselves on their notice."

Hume's indictment that the garganeys devour acres of rice crops at one visit is a severe one. The species is numerous, and if what Hume says is correct, it is a pest.

I am inclined to think that Hume has exaggerated the damage done by the garganeys. Unfortunately Mason examined stomachs in April—a season at which I believe rice was not growing in the locality, so that the fact that he found no rice in the stomachs does not prove that the birds do not eat this in large quantity. That the garganeys do not winter in the Punjab where rice does not grow, and leave the United Provinces after the rice is harvested, may possibly be due to the fondness of the species for rice. The food of this handsome duck is certainly a subject which requires further investigation.

NIDIFICATION

The garganey teal breeds in the temperate parts of Europe and Asia, including England, France, Aia Minor, but not Japan. Normally it does not breed in India; there are, however, records of newly-fledged and half-fledged birds being found there. These were almost certainly the offspring of wounded birds which, being unable to migrate, nested in India.

The breeding season begins in April. The nest is of the usual type of ducks' nests and is placed on the ground. It is composed of rushes and dried grass, lined with leaves and down, and is usually on boggy ground, concealed in long coarse grass or rushes. Occasionally the nest is placed

in a cornfield. The clutch of eggs varies from eight to fourteen.

Sir E. Newton describes a nest he found on the Norfolk Broads. It was on a bank about twenty feet wide, some three feet above the level of the marsh, well concealed in long grass, but within a yard of a path daily used by mowers.

CHAPTER XXXV

THE BRONZE-CAPPED TEAL

SCIENTIFIC NAMES

LATEST NAME.—*Eunetta falcata*.

EARLIER NAMES.—*Querquedula falcata*. *Anas falcata*.

ENGLISH NAMES

Bronze-capped Teal. Bronze-capped Duck. Crested Teal. Falcated Teal.

VERNACULAR NAME

Kala Sinkhar (Oudh).

DESCRIPTION

Length, 20 in. ; tail, 3 in. ; wing, 10 in. ; bill, 2 in.

Drake in Full Plumage.—The head is chestnut, except for a white spot on the forehead and a broad green metallic band which runs from eye to eye round the back of the head, from which it projects as a bushy crest. The throat and fore neck are white, with a dark green collar round the latter. The breast is white with brown crescents on it. The upper back and flanks are white, finely pencilled with black, giving them a grey appearance. The lower back and rump are brown. The wings are grey and brown with a metallic green speculum, having a narrow white border behind, which is almost obliterated by the sickle-shaped upper wing feathers, that curl downwards like those of a barn-door cock. These sickle-shaped

feathers are black, edged with grey. It is from these feathers that the species derives its name "falcata" or "falcated"—i.e. sickle-shaped. As it is these feathers and not the bird which are sickle-shaped, and as the duck lacks them, the name is not a particularly happy one. These feathers are not shown in Mr Wright's picture because the specimen obtained in the Punjab had not assumed them. They appear to be late in developing, and males shot in India during the early part of the winter may not have them properly developed. Bill black. Legs dark greenish grey.

Drake in Eclipse Plumage.—Like the duck except that the wing feathers are black, edged with grey.

Duck.—The female lacks the sickle-shaped wing feathers. She wears the mottled brown plumage which characterises so many of her kind. She is in appearance rather like the female gadwall. The two may at once be distinguished by the feet and the wing-colouring. The legs and feet of the gadwall are orange mixed with black, those of the bronze-capped teal are slate-colour. The wing-band of the gadwall is white, while that of the female bronze-cap is black glossed with green.

DISTRIBUTION

The falcated teal breeds in Siberia and Japan, and migrates in the autumn into China, Formosa and Shanghai. A few visit Japan to the east, and India and Mesopotamia to the west. Stragglers have appeared as far west as Sweden. Up to date this bird has been recorded only in the northern parts of India and Burma. It is certainly not common in India, and the sportsman who shoots one should send a note of the fact to the Bombay Natural History Society.



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HABITS

The falcated teal enjoys the dubious distinction of having less on record regarding its habits than has almost any duck. This, of course, is because it lives in a part of the world where nature study is not fashionable! In captivity (so Finn says, and what he says may be accepted without hesitation) it is "very quiet and uninteresting"; nor is it, despite the showy plumage of the drake, very handsome, being of rather clumsy shape.

Finn says that the note of the drake is a whistle and that of the duck is the ordinary quack, five times repeated. Stuart Baker, who had an opportunity of seeing the bird in Assam, heard it utter a note which struck him as "much like the feeding note of the mallard." It is powerful on the wing.

FOOD

The bird is said to feed almost entirely on vegetation. The only person who has recorded the contents of its stomach—Radde—states that birds he shot on 13th April contained nothing but fragments of quartz and a few shoots of plants.

NIDIFICATION

The nest appears to be of the usual type of that of the ground-nesting duck, except that it contains an unusual quantity of down—it is said that the down is sometimes six inches deep. The duck sits closely and, according to Dybowski, "only rises at your feet."

If the reports to hand are true, there is one peculiar feature in the nesting of this species, and that is the

behaviour of the drake, which, according to Stuart Baker, assists, at least occasionally, in the duties of incubation. From six to nine eggs are laid. The laying season is from the end of April to the middle of July, the greatest number of eggs being laid in June.

CHAPTER XXXVI

THE CLUCKING TEAL

SCIENTIFIC NAMES

LATEST NAME.—*Nettion formosum*.

EARLIER NAMES.—*Nettium formosum*. *Querquedula formosa*.
Querquedula glaucitans. *Anas glaucitans*. *Anas formosa*.

ENGLISH NAMES

Clucking Teal. Baikal Teal.

DESCRIPTION

Length, 15½ in. ; tail, 3 in. ; wing, 8½ in. ; bill, 1¾ in.

Drake in Full Plumage.—A very showy bird. The colour pattern on his head is startling ; no other species can boast of anything approaching it. The forehead and crown are black, as is the throat. From the sides of the throat a black line runs vertically up each cheek till it meets the eye. A crescent-shaped band of glistening green round the back of the head extends from eye to eye. From this green band three black streaks run—one in the middle down the back of the neck, and one on each side of the neck curving towards the front. The rest of the head is buff. The neck is separated from the breast by a white collar, interrupted at the back by the middle black band mentioned above. All the black bands on the head are narrowly margined with white. The breast is the colour of a faded port-wine stain with a number of round

black spots. The belly is white or cream, with a black patch under the tail. The shoulders and flanks are dark grey very closely and finely pencilled with white. The wings and tail are brown. There is a speculum of three bands—the front one being greenish bronze, the middle one black, and the hind one white. Some of the brown feathers at the back of the shoulders are long and hang down at the sides over the wing. The bill is brown tinted with blue; the legs are slaty grey.

Drake in Eclipse Plumage.—Very like the duck, but less mottled; the breast is tinted with red.

Duck.—The usual mottled brown upper plumage and white under parts. The speculum is like that of the drake, but duller. A buff spot on each side of the face just behind the bill.

DISTRIBUTION

The clucking teal is found in Eastern Asia from about lat. 80° N. to lat. 20° N. It breeds in Siberia, and, in winter, visits China, Formosa and South Japan. Stragglers come to India and other countries. They have been shot as far west as France.

This duck is probably commoner in India than the records show. It was first recorded in 1844. It has been shot as far west as Lyallpur and south as Ahmedabad. Of late years it has been shot in 1912, 1913 (two occasions), 1916 and 1923. As regards the latest occurrence of the bird in India, Mr J. M. Turner writes to me: "Shooting at Gutiya Ghat, twenty-five miles from Shahjahanpur, with two other guns on the Gumti in February 1923, I went to a back-water, or pool, left by the river, and came on an extraordinary number and variety of duck, and, having

dropped mallard, pintail and red-crested pochard with my first few shots, I saw a flight of teal sweeping down the river towards me, and amongst them one bird which looked to me like a gadwall. I dropped him, and he fell into the pool with a broken wing. I waded out to him and he dived, but I waited and he came up after a while at the same spot, and made a peculiar noise, as if drawing water through his nose. I made a grab at him and got him under water. . . . I found he was the male of the Baikal, or clucking, teal. . . . A week later I saw another male at the identical spot, but in manœuvring for a shot through long grass I disturbed other duck and did not get a shot at the Baikal teal."

The drake secured by Mr Turner was in full plumage. He says that the plate in Hume and Marshall's *Game Birds of India* (which is reproduced in Finn's *Indian Sporting Birds*) is good, but, as Hume points out, the yellow colouring on the wing is too bright; it should be more buff.

HABITS

The clucking teal appears to have habits like those of the common teal, with which it frequently associates. It flies well and can dive when necessity arises. Its most distinctive feature seems to be that which has given it its name—its clucking call, which sounds like the words *mock-mock* said very quickly. It appears to be chiefly a fresh-water bird, but has been observed in salt water. Radde states that in Siberia he has seen clucking teal and common teal standing in small flocks on ice blocks and floating down the stream on them. Nothing is on record regarding the food of this species in India.

NIDIFICATION

Finn says the drake "displays in a curious way, generally on land so far as I have seen ; first raising his head and erecting the plumage on it, so that it seems much larger, and then jerking it back on to his shoulders, clucking vigorously the while."

The only account of the nesting of the clucking teal which I have come across is that of Middendorf. He saw these birds on the Boganida (lat. 70° N.). They arrived on 12th June. He found a nest on 3rd July containing seven fresh eggs. The nest was under a willow bush on the river bank. On 28th July he saw a drake in moult.

CHAPTER XXXVII

THE MARBLED DUCK

SCIENTIFIC NAMES

LATEST NAME.—*Marmaronetta angustirostris*.

EARLIER NAMES.—*Chaulelasmus angustirostris*. *Querquedula angustirostris*. *Anas angustirostris*.

ENGLISH NAMES

Marbled Duck. Marbled Teal.

DESCRIPTION

Length, $18\frac{1}{2}$ in.; tail, $3\frac{1}{4}$ in.; wing, $8\frac{1}{4}$ in.; bill, 2 in.

The sexes differ very little in appearance. The bleached, faded, washed-out-looking mottled grey plumage of this duck, without a dash of bright colour on any part of its anatomy; the narrow bill, which is exactly the same breadth at the base and the tip; and the short, rounded wing render its identification very easy. There is no other duck like it. It has long puzzled ornithologists, by whom, as Blanford remarks, it "has been bandied about from one generic group to another." Sportsmen cannot make up their minds whether to call it a duck or a teal.

The upper plumage is dull brown-grey, with cream-coloured spots and crescentic markings. There is a streak of brown on each side of the face.

The lower plumage is dirty-white. The bill is blue-grey with a black nail at the tip. There is a black line

on top and one on the edge of the upper chap or mandible. There is a short crest on the head, which is so short that it has to be looked for to be noticed !

DISTRIBUTION

The distribution of the marbled duck is curious : it is a bird of warm countries. It is common in Spain and the south of France, but apparently nowhere else in Europe. It breeds in the Canaries, being the only duck that does so. It is fairly common in North Africa and South-Western Asia. Its breeding range extends from the Canaries to Baluchistan. In winter numbers visit India, but do not usually venture far into the interior. Sind and Bhawalpur are the only places where it is anything like common. There are a number of records of its being shot in the Punjab. Thus Mr H. W. Waite shot a specimen in 1908 and one in 1909 in the Ferozepore district, and one in 1918 and one in 1921 in the Jhelum district, and Major Broome shot one on 3rd March 1923 at Sheikopura (near Lahore) on a canal.

As regards other parts of India, a marbled duck was shot at Bharatpur in 1909 and occasional occurrences have been recorded in Cutch, Kathiawar and the United Provinces. There is also an old record of its occurrence at Calcutta.

HABITS

I have had no opportunity of observing the habits of this duck. The information that follows is based on the observations of others. According to Lord Lilford, it has much the same habits as the common teal, flying very swiftly and not far above the water, uttering a low croaking whistle, somewhat like, but not exactly similar to, that of the last-mentioned bird.



MARbled-DUCK

It is both a fresh- and a salt-water duck. It has been observed swimming on the sea near Gibraltar. Its diet is said to consist chiefly of crustaceans, insects and worms.

By far the best and most detailed account of the habits of this bird is that of Hume, who states that it comes to India early in November and leaves by the end of March.

According to Hume the marbled teal swarms in "countless multitudes" on the "broads" of Sind, west of the Indus, and occasionally in the Hyderabad collectorate. He found it invariably associated in large parties. It usually eschews rivers or open pieces of water and haunts the rushy lakes, which, seen from a distance, look like waving hayfields; where not much shot at, it lies fairly close and rises out of the rush as the boats push through this, like partridges out of a turnip-field.

As to the flight of the marbled teal, Hume agrees with Lord Lilford that it resembles that of the common teal, but it is less rapid and the bird does not turn so easily. He therefore thinks it more nearly resembles that of the garganey teal, but is less powerful and rapid. There is something of the gadwall in it too, but it wants the ease of this. Marbled teal usually settle soon after they have been disturbed. They dive and walk well. They speedily become tame in captivity. Hume says that in Sind the major portion of the food of this duck consists of leaves, shoots, rootlets, corn and seeds of aquatic plants intermingled with worms, fresh-water shells, insects of all kinds and their larvæ.

NIDIFICATION

The nest is on the ground and is formed of small broken pieces of dried rushes mixed with a large quantity of down. In Spain, Irby found two nests in a small circular isolated

patch of short spiky rushes, not more than ten feet in diameter and surrounded by dry mud.

Tristram found the marbled teal breeding in June in great numbers in Palestine in "places wholly inaccessible."

Captain C. M. Thornhill gives, on p. 490 of vol. xxv. of *The Journal of the Bombay Natural History Society*, the following account of the nesting operations of the marbled duck in Mesopotamia: "None were seen till 10th April (1916), when they appeared about Hanna and Sannaiyat; several flocks up to twenty in number. They soon split up and bred, nesting in the grass and scrub on the river bank. I got no eggs, but a pair nested in 'No man's land' at Sannaiyat, one pair on the river bank at Falahiyah and one at Hanna; the two latter nests I found, one had five hard-set eggs and the other six, on the 15th and 18th of May. The nest was made in a tamarisk bush in one case and in a large tussock of grass in the other."

There is now little doubt that this species breeds within Indian limits. In 1878 Colonel Butler received some eggs which he believed to be those of the marbled duck; they were taken from a nest in a salt-marsh on the Mekran coast. Barnes also received similar eggs.

More recently Aitken, one August, when in a boat on the Khushdil Lake near Quetta, disturbed a marbled duck which entered the water with fourteen ducklings about a week old. The duck went through what are usually described as injury-feigning antics, and let the boat come within a yard of her before she flew off.

Ludlow, on p. 368 of vol. xxiv. of *The Journal of the Bombay Natural History Society*, records that the marbled duck breeds near Sonmeani on the coast about fifty miles west of Karachi. His collector brought him in some eggs

and a couple of young marbled teal alive, which he presented to the Karachi Zoological Gardens.

He states that his collector discovered two nests on 14th June, one containing twelve and the other nine eggs. "The nests were found on an island in the middle of a *jhil* and were constructed within a thick tussock of grass, completely shrouded from view. A grass tunnel betrayed the mode of entry. The female when disturbed performed the broken-wing trick."

It is highly probable that this duck in favourable years nests in secluded parts of Western Sind, and people who are stationed in that locality have a good opportunity of discovering the nest of this interesting bird. Ludlow was informed in 1915 by the Mohannas that it breeds on the Manchar Lake, Sind, in fair numbers in favourable years.

CHAPTER XXXVIII

THE EASTERN GREY DUCK

SCIENTIFIC NAMES

LATEST NAME.—*Anas pæcilorhyncha zonorhyncha*.

EARLIER NAME.—*Anas zonorhyncha*.

ENGLISH NAMES

Eastern Grey Duck. Chinese Grey Duck.

DESCRIPTION

This eastern form of the spotted-bill differs from the Indian race chiefly in having no red spots at the base of the bill, having the speculum or wing-band blue, and less white in the wing.

DISTRIBUTION

The Chinese grey duck inhabits Eastern Asia, including Japan. Stragglers visit Burma. Harington shot one in December 1911, at Tongyi.

Anyone shooting this bird in India should record the fact.

HABITS

The habits of the eastern grey duck are said to be similar to those of the Indian form.

NIDIFICATION

This species breeds in China and Japan from the end of April till the middle of July. The nest is like that of the Indian spotted-bill and is generally on the ground.

CHAPTER XXXIX

THE MANDARIN DUCK

SCIENTIFIC NAMES

LATEST NAME.—*Æx galericulata*.

EARLIER NAMES.—*Aix galericulata*. *Anas galericulata*.

DESCRIPTION

Length, 17 in. ; tail, $4\frac{1}{2}$ in. ; wing, 9 in. ; bill, $1\frac{1}{2}$ in.

Drake in Full Plumage.—Forehead black glossed with green ; crown chestnut. There is a crest, which is often raised, but is generally recumbent like “bobbed hair,” or the hair as depicted in the pictures of ancient Egyptians. This is green in the middle and fawn-colour at the sides. The cheeks are white, the white extending as a thin band into the crest. From each cheek hangs a fringe of bright chestnut feathers with yellow shafts ; these hackles give the bird the appearance of having long whiskers that are flattened against the neck. Wings olive-brown. Flight feathers brown with white shafts. Some of the flight feathers are broad, and these are habitually expanded and stand up from the wings like brown sails or expanded fans or combs. Rump pale olive-brown. Tail dark brown. Breast purple-copper, with four vertical narrow white bands on each side before it meets the belly, which is also white. The bill, which is short and small, is reddish brown, with a pale pink nail. The feet are yellowish red with blackish webs.

The expanded sail-like wing feathers render it possible

to recognise at a glance the mandarin drake when in full plumage. He looks like a little ship with a high prow, carrying two small brown sails.

Drake in Eclipse Plumage.—Like the duck, but his head is greyer, and he lacks the white ring round the eye.

Duck.—Head and pendent crest greyish brown, with a white ring round the eye. The rest of the upper plumage is pale brown. The lower parts are white.

DISTRIBUTION

The mandarin duck occurs in North-West China, where it breeds, chiefly in the basin of the Amur river. In the autumn it migrates southward and to Japan and Formosa. It has been shot in winter at least once in Assam; and it would seem that stragglers occasionally visit North-East India and possibly Upper Burma.

Any sportsman in India who shoots or sees this duck should make a point of sending a record of the fact to the Bombay Natural History Society.

HABITS

As Finn points out, the mandarin drake, like the swan, habitually erects the wing feathers as though it were displaying. This gives it its puffed-up appearance.

"The note of the male," he writes, in his *Wildfowl of the World*, "is like the Carolina's whispered or slurred *ah-eesh*; the female's is a harsh sneeze, or, under great excitement, a shrill quack, like the Carolina female's." It should be mentioned that the mandarin is nearly related to the Carolina duck.

Mandarin ducks seem to live by preference in small

flocks in fresh streams. They swim, walk and fly well. They often perch in trees. They appear to be omnivorous in their diet and obtain much of their food on land. There are no records of what they feed on in India.

Despite their small size, mandarins, owing to their pluck, are able to hold their own in company with larger ducks, and they do well in captivity.

NIDIFICATION

I have not found anything on record regarding the nesting of the mandarin in the wild state, but as it breeds freely in captivity, much has been written about its nesting habits under such conditions. The best accounts of its nidification which I have read are those of Mr Meade-Waldo in *The Avicultural Magazine* for the period 1911-1913.

In 1911 he wrote : "This last summer, as we had many mandarin ducks, we did not take the eggs but left them to the old birds to rear. The nests were as usual in holes in trees, many of them a long way from home and high up in most inaccessible places. All the young got down, or got themselves down, and what I want to draw your attention to is the extraordinary activity of these little ducks when first hatched.

"To begin with, some of these nests were at least two feet down a perpendicular hole in a tree ; the young, to have got out, must have jumped up that height. A brood of young ducks covered a mile as the crow flies, partly through standing corn, the day they were hatched, in a little over an hour. The young ones were able to leap from the *water* on to a branch, eighteen inches high, when a day or two old, and it was very pretty to see an old duck fly on to a branch and the young leap up, one after the other, and range

themselves along the branch ; one or two would generally jump on to the old duck's back. The old ducks did not spend all their time with their broods, but flew away for hours at a time. When returning they flew low through the trees with great rapidity, dodging in and out of the branches like a woodcock, and calling loudly all the time ; the young would hear them coming and swim out from where their mother had left them and look about to see where she was coming from."

From six to eight eggs are usually laid.

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